

Service Manual



Service Manual

CU405



Model : CU405



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1. INTRODUCTION

1.1 Purpose

This manual provides the information necessary to repair, calibration, description and download the features of this model.

1.2 Regulatory Information

A. Security

Toll fraud, the unauthorized use of telecommunications system by an unauthorized part (for example, persons other than your company's employees, agents, subcontractors, or person working on your company's behalf) can result in substantial additional charges for your telecommunications services. System users are responsible for the security of own system. There are may be risks of toll fraud associated with your telecommunications system. System users are responsible for programming and configuring the equipment to prevent unauthorized use. The manufacturer does not warrant that this product is immune from the above case but will prevent unauthorized use of commoncarrier telecommunication service of facilities accessed through or connected to it. The manufacturer will not be responsible for any charges that result from such unauthorized use.

B. Incidence of Harm

If a telephone company determines that the equipment provided to customer is faulty and possibly causing harm or interruption in service to the telephone network, it should disconnect telephone service until repair can be done. A telephone company may temporarily disconnect service as long as repair is not done.

C. Changes in Service

A local telephone company may make changes in its communications facilities or procedure. If these changes could reasonably be expected to affect the use of the phones or compatibility with the network, the telephone company is required to give advanced written notice to the user, allowing the user to take appropriate steps to maintain telephone service.

D. Maintenance Limitations

Maintenance limitations on the phones must be performed only by the manufacturer or its authorized agent. The user may not make any changes and/or repairs except as specifically noted in this manual. Therefore, note that unauthorized alternations or repair may affect the regulatory status of the system and may void any remaining warranty.

1. INTRODUCTION

E. Notice of Radiated Emissions

This model complies with rules regarding radiation and radio frequency emission as defined by local regulatory agencies. In accordance with these agencies, you may be required to provide information such as the following to the end user.

F. Pictures

The pictures in this manual are for illustrative purposes only; your actual hardware may look slightly different.

G. Interference and Attenuation

A phone may interfere with sensitive laboratory equipment, medical equipment, etc. Interference from unsuppressed engines or electric motors may cause problems.

H. Electrostatic Sensitive Devices

ATTENTION

Boards, which contain Electrostatic Sensitive Device (ESD), are indicated by the  sign. Following information is ESD handling:

- Service personnel should ground themselves by using a wrist strap when exchange system boards.
- When repairs are made to a system board, they should spread the floor with anti-static mat which is also grounded.
- Use a suitable, grounded soldering iron.
- Keep sensitive parts in these protective packages until these are used.
- When returning system boards or parts like EEPROM to the factory, use the protective package as described.

2. PERFORMANCE

2.1 Default Packaging Accessories

Item	Specification	Performance
1. Battery	Li-ion, 1,100mAh 1ea	Charging Voltage : 4.2V Charging Current : 650mA (Charging Time : under 3 hours)
2.Travel Adapter	Output : 4.6V, 800mA	Input : AC 100 ~ 240V

2.2 System Specification

Item	Specification
Shape	GSM850/EGSM/1800/1900 and WCDMA Slim Clamshell
Size	92.7 x 49.5 x 20.9 mm
Weight	100 g (with Battery)
Power	3.7V normal, 1100 mAh Li-Polymer
LCD	TFT Main LCD(2°Ø, 262K, 176 x 220), MSTN Sub LCD
Travel Adaptor	Input : AC 100~240V , Output : 4.6V, 800mA

2.3 Using Condition (Accessory)

1) Maximum Using Condition (Using Environment)

Item	Specification
Available AC Input Power	AC 100 ~ 240V Max
Available DC Input Power	12V Max
Storage Temperature	-30 ~ +85 °C

2. PERFORMANCE

2) General Using Condition

Item	Spec.	Min	Typ.	Max	Unit
Output Power	DC Power			12	Vdc
	Battery Power	3.2	3.7	4.2	Vdc
Input Power	AC Power	100	110	240	Vac
Current Consumption					W
Operation Temperature		-20		60	°C

2.4 Radio Performance

1) Transmitter - GSM Mode

Item	Specification
Phase Error	Rms : 5° Peak : 20°
Frequency Error	GSM : 0.1 ppm DCS/PCS : 0.1 ppm
EMC(Radiated Spurious Emission Disturbance)	GSM/DCS : < -28dBm
Transmitter Output power and Burst Timing	GSM : 5dBm - 33dBm ± 3dB DCS/PCS : 0dBm - 30dBm ± 3dB
Burst Timing	<3.69us
Spectrum due to modulation out to less than 1800kHz offset	200kHz : -36dBm 600kHz : -51dBm/-56dBm
Spectrum due to modulation out to larger than 1800kHz offset to the edge of the transmit band	GSM : 1800-3000kHz : < -63dBc(-46dBm) 3000kHz-6000kHz : < -65dBc(-46dBm) 6000kHz < : < -71dBc(-46dBm) DCS : 1800-3000kHz : < -65dBc(-51dBm) 6000kHz < : < -73dBc(-51dBm)
Spectrum due to switching transient	400kHz : -19dBm/-22dBm(5/0), -23dBm 600kHz : -21dBm/-24dBm(5/0), -26dBm
Reference Sensitivity - TCH/FS	Class II(RBER) : -105dBm(2.439%)
Usable receiver input level range	0.012(-15 - -40dBm)
Intermodulation rejection - Speech channels	± 800kHz, ± 1600kHz : -98dBm/-96dBm (2.439%)
AM Suppression -GSM : -31dBm - DCS : -29dBm	-98dBm/-96dBm (2.439%)
Timing Advance	± 0.5T

2. PERFORMANCE

- Frequency Range : GSM(824~849MHz/869~894MHz), DCS(1710~1785MHz/1805~1880MHz)
PCS(1850~1910MHz/1930~1990MHz)
- Oscillator Frequency Range : 1688 ~ 1736 MHz
- Intermediate Frequency : None
- Normal Maximum Output Power : 1995.3mW (33dBm)

2)Transmitter - WCDMA Mode

Item	Specification
Transmit Frequency	WCDMA850 : 824 MHz ~ 849 MHz WCDMA1900 : 1850 ~1910 MHz
Maximum Output Power	+24 dBm / 3.84 MHz, +1 / -3 dB
Frequency Error	within ± 0.1 PPM
Open Loop Power Control	Normal Conditions : within ± 9 dB, Extreme Conditions : within ± 12 dB
Minimum Transmit Power	< -50 dBm /3.84 MHz
Occupied Bandwidth	< 5 MHz at 3.84 Mcps (99% of power)
Adjacent Channel Leakage Power Ratio (ACLR)	> 33 dB @ ± 5 MHz, > 43 dB @ ± 10 MHz
Spurious Emissions If $f - f_c > 12.5$ MHz	< -36 dBm / 1 kHz RW @ $9 \text{ kHz} \leq f < 150 \text{ kHz}$ < -36 dBm / 10 kHz RW @ $150 \text{ kHz} \leq f < 30 \text{ MHz}$ < -36 dBm / 100 kHz RW @ $30 \text{ MHz} \leq f < 1 \text{ GHz}$ < -30 dBm / 1 MHz RW @ $1 \text{ GHz} \leq f < 12.75 \text{ GHz}$ < -41 dBm / 300 kHz RW @ $1893.5 \text{ MHz} < f < 1919.6 \text{ MHz}$ < -67 dBm / 100 kHz RW @ $925 \text{ MHz} \leq f \leq 935 \text{ MHz}$ < -79 dBm / 100 kHz RW @ $935 \text{ MHz} < f \leq 960 \text{ GHz}$ < -71 dBm / 100 kHz RW @ $1805 \text{ MHz} \leq f \leq 1880 \text{ MHz}$
Transmit Intermodulation	< -31 dBc @ 5 MHz & < -41 dBc @ 10 MHz when Interference CW Signal Level = -40 dBc
Error Vector Magnitude	< 17.5 %, when Pout \geq -20 dBm
Peak Code Domain Error	< -15 dB at Pout \geq -20 dBm

2. PERFORMANCE

3)Receiver - GSM Mode

Item		Specification	
Sensitivity (TCH/FS Class II)		-105dBm (GSM / EGSM / DCS / PCS)	
Co-Channel Rejection (TCH/FS Class II, RBER, TU high/FH)		C/Ic=7dB (GSM / EGSM) Storage -30 ~ +85 (DCS / PCS)	
Adjacent Channel Rejection	200kHz	C/Ia1 = -12dB(GSM / EGSM / DCS / PCS)	
	400kHz	C/Ia2 = -44dB(GSM / EGSM / DCS / PCS)	
Intermodulation Rejection		Wanted Signal : -98dBm 1 st interferer : -44dBm 2 nd interferer : -45dBm (GSM / EGSM)	Wanted Signal : -96dBm 1 st interferer : -44dBm 2 nd interferer : -45dBm (DCS / PCS)
Blocking Response (TCH/FS Class II, RBER)		Wanted Signal : -101dBm Unwanted : Depend on Freq.	Wanted Signal : -101dBm Unwanted : Depend on Freq.

4)Receiver - WCDMA Mode

Item	Specification
Receive Frequency	WCDMA850 : 849 MHz ~ 894 MHz WCDMA1900 : 1930 ~1990 MHz
Reference Sensitivity Level	BER < 0.001 when \hat{I}_{or} = -106.7 dBm / 3.84 MHz
Maximum Input Level	BER < 0.001 when \hat{I}_{or} = -25 dBm / 3.84 MHz
Adjacent Channel Selectivity (ACS)	ACS > 33 dB where BER < 0.001 when \hat{I}_{or} = -92.7 dBm / 3.84 MHz & I_{oac} = -52 dBm / 3.84 MHz @ ± 5 MHz
Blocking Characteristic	BER < 0.001 when \hat{I}_{or} = -103.7 dBm / 3.84 MHz & $I_{blocking}$ = -56 dBm / 3.84 MHz @ $F_{uw}(\text{offset}) = \pm 10$ MHz or $I_{blocking}$ = -44 dBm / 3.84 MHz @ $F_{uw}(\text{offset}) = \pm 15$ MHz
Spurious Response	BER < 0.001 when \hat{I}_{or} = -103.7 dBm / 3.84 MHz & $I_{blocking}$ = -44 dBm
Intermodulation	BER < 0.001 when \hat{I}_{or} = -103.7 dBm / 3.84 MHz & I_{ouw1} = -46 dBm @ $F_{uw1}(\text{offset}) = 10$ MHz & I_{ouw2} = -46 dBm / 3.84 MHz @ $F_{uw2}(\text{offset}) = \pm 20$ MHz
Spurious Emissions	< -57 dBm / 100 kHz BW @ $9 \text{ kHz} \leq f < 1 \text{ GHz}$ < -47 dBm / 1 MHz BW @ $1 \text{ GHz} \leq f \leq 12.75 \text{ GHz}$

2. PERFORMANCE

2.5 Current Consumption

	WCDMA Only	GSM Only
Sleep Mode	1.5mA(sleep current) ↓	1.5mA(sleep current) ↓
Standby	4.4mA(DRX=1.28sec) ↓	4.4mA(MF=5) ↓
Talk Mode	VC 12dBm : 366 mA↓	366 mA (Tx Lvl:5) ↓
NO SVC Mode	TBD	TBD
Power Off (Backup Battery Charging)	300 μ A ↓ 500 μ A ↓	300 μ A ↓ 500 μ A ↓

2.6 Operation Time

	Stand by	Voice Call	VT
WCDMA Only	250 hours ↑ = 4.4mA ↓ (1100mAh battery, DRX cycle = 1..28)	180 mins ↑ = 366mA ↓ (1100mAh battery, TX = 12dBm)	/
GSM Only	250 hours ↑ = 4.4mA ↓ (1100mAh battery, Paging frame class5)	180 mins ↑ = 366mA ↓ (1100mAh battery, TX = Level 5)	/

2.7 RSSI Bar

Level Change	WCDMA	GSM
BAR 5 → 4	-85 ± 2 dBm	-85 ± 2 dBm
BAR 4 → 3	-90 ± 2 dBm	-90 ± 2 dBm
BAR 3 → 2	-95 ± 2 dBm	-95 ± 2 dBm
BAR 2 → 1	-98 ± 2 dBm	-100 ± 2 dBm
BAR 1 → 0	-101 ± 2 dBm	-105 ± 2 dBm

2. PERFORMANCE

2.8 Battery Bar

Indication	Standby
Bar3	Over $3.68 \pm 0.05V$
Bar 3 → 2	$3.68 \pm 0.05V$
Bar 2 → 1	$3.6 \pm 0.05V$
Bar 1 → Empty	$3.52 \pm 0.05V$
Low Voltage, Warning message+ Blinking	$3.42 \pm 0.05V$ (Stand-by) / $3.52 \pm 0.05V$ (Talk) [Interval : 3min(Stand-by) / 1min(Talk)]
Power Off	$3.28 \pm 0.05V$

2.9 BACKUP BATTERY : over 50 hours (when normal POWER OFF/EMERGENCY OFF)

2.10 Sound Level

Ring Tone : Cingular Requested Specification

30Cm distance : under 75dBspl

2.5Cm distance : under 115dBspl

Contact : under 140dBspl (Reporting Maximum Value)

Key Tone (Only Numeric Keypad measured) :

1) Standby :

a) Speaker : under 140dBspl (when contact state / Maximum Tone), over 70dBspl (when
30cm distance / Minimum Tone),

b) Headset : 60 ~ 98dBspl

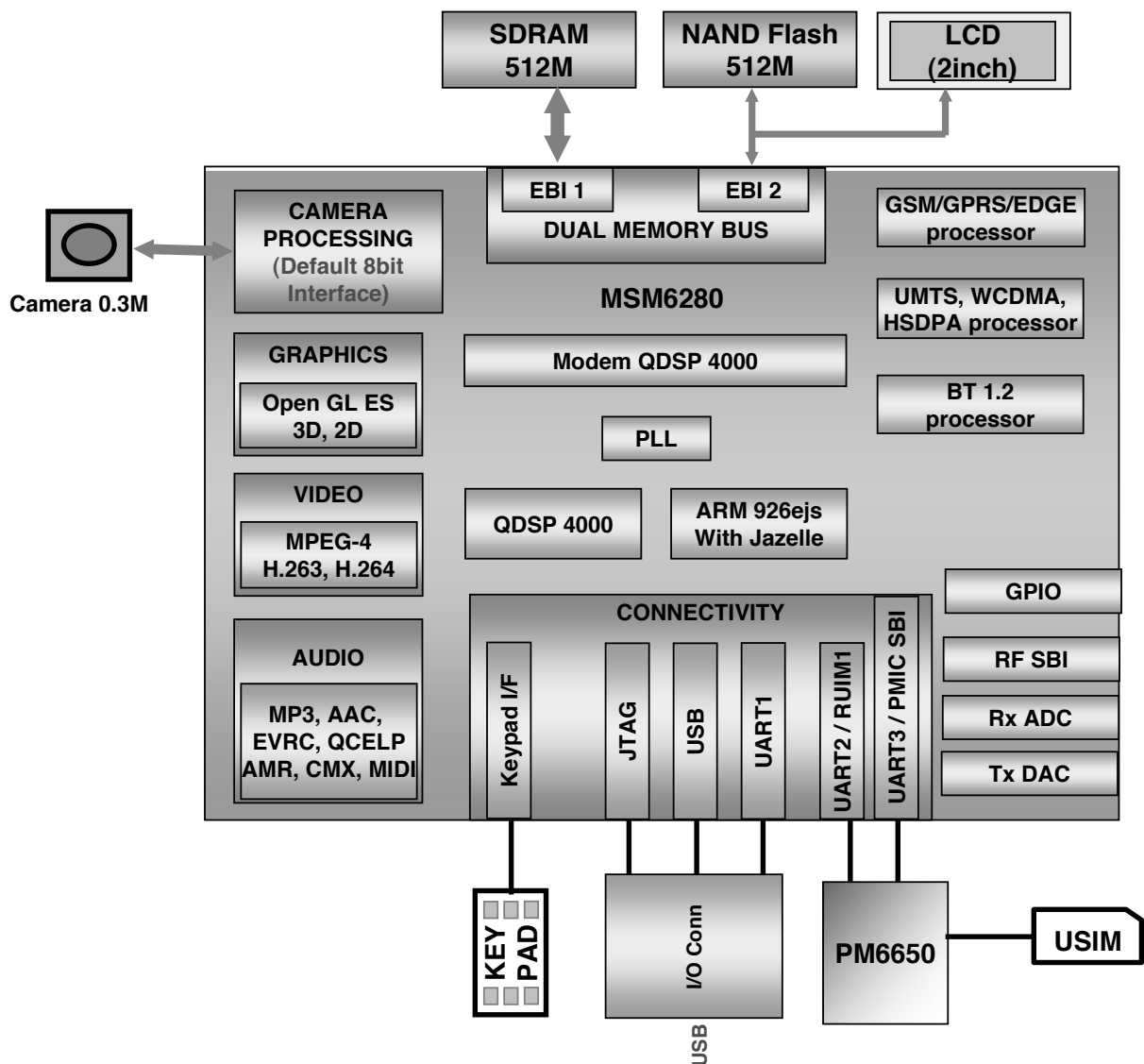
2) Talk :

a) Speaker : 60 ~ 98dBspl

b) Headset : 60 ~ 98dBspl

3. RF TECHNICAL BRIEF

3.1 MSM6280 (Block Diagram)



3. TECHNICAL BRIEF

3.2 MSM6280 (GPIO MAP)

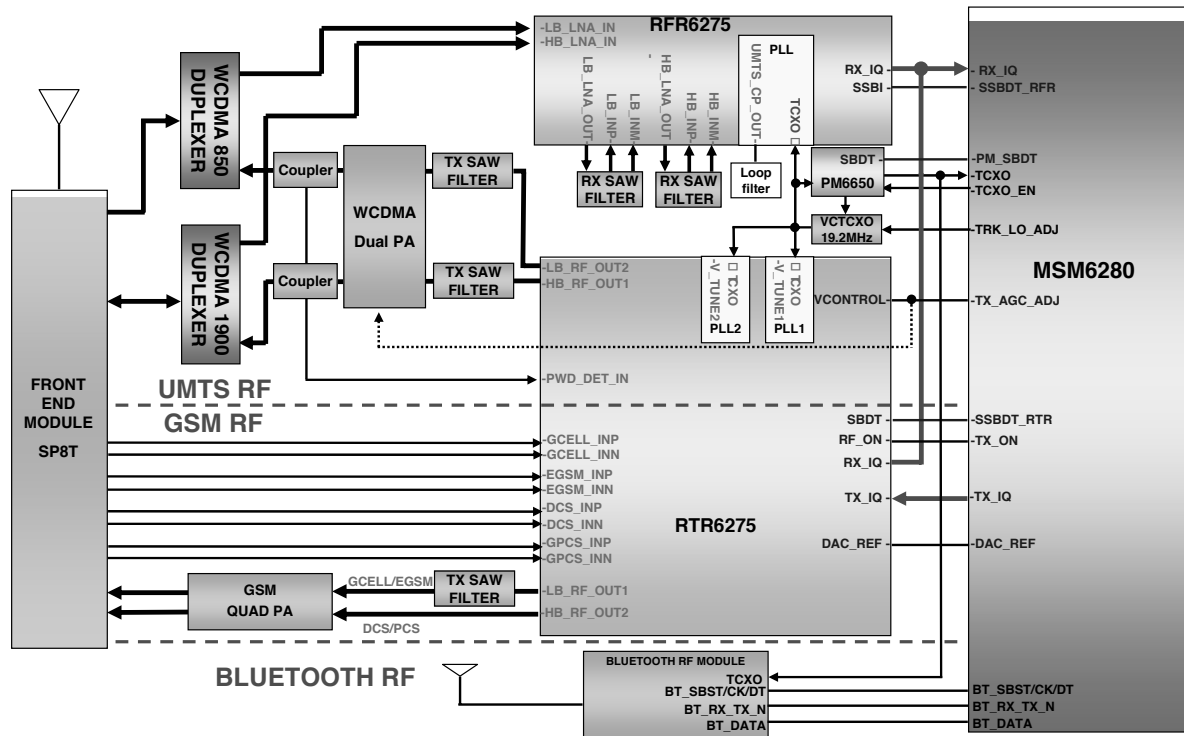
GPIO#	GPIO(RFCMOS)	CU400
GPIO[0]	GPS_SBCK (WDOG_STG)	
GPIO[1]	GPS_SBDT	
GPIO[2]	PA_ON1	PA_ON1
GPIO[3]	WCDMA_SAW_SW_MODEB	
GPIO[4]	GSM_PA_EN(GRFC1)	GAM_PA_EN
GPIO[5]	GSM_PA_BAND(GRFC2)	GSM_PA_BAND
GPIO[6]	WCDMA_SAW_SW_MODEA	
GPIO[7]	NC	
GPIO[8]	GSM_SAW_SW_MODE	GSM_SAW_SW_MODE
GPIO[9]	ANT_SEL0_EN_N(GRFC6)	ANT_SEL0
GPIO[10]	ANT_SEL1_EN_N(GRFC7)	ANT_SEL1
GPIO[11]	ANT_SEL2_EN_N(GRFC8)	ANT_SEL2
GPIO[12]	ANT_SEL3_EN_N(GRFC9)	ANT_SEL3
GPIO[13]	CAM_MCLK	CAM_MCLK
GPIO[14]	GRFC13	
GPIO[15]	CAM_HSYNC	CAM_HSYNC
GPIO[16]	CAM_VSYNC	CAM_VSYNC
GPIO[17]	CAM_RESET_N	CAM_VGA_RESET
GPIO[18]	CAM_EN	
GPIO[19]	GP_CLK	LCD_BL_CTRL
GPIO[20]	BT_DATA	BT_DATA
GPIO[21]	BT_TX_RX_N	BT_TX_RX_N
GPIO[22]	BT_SBDT	BT_SBDT
GPIO[23]	BT_SBCK	BT_SBCK
GPIO[24]	BT_SBST	BT_SBST
GPIO[25]	BT_CLK	BT_CLK
GPIO[26]	I2C_SDA	I2C_SDA
GPIO[27]	I2C_SCL	I2C_SCL
GPIO[28]		LCD_IF_MODE
GPIO[29]	PA_ON2	PA_ON2
GPIO[30]	SDCC_CMD	
GPIO[31]	SDCC_CLK	
GPIO[32]	SDCC_DAT(0)	
GPIO[33]	NAND_READY	NAND_READY
GPIO[34]	A2(20)	EBI2_ADDR(20);LCD_ADS
GPIO[35]	XMEM2_CS_N(2)	
GPIO[36]	XMEM2_CS_N(3)	VGA_CAM_PWDN
GPIO[37]	LCD_EN	
GPIO[38]	LCD2_CS_N	LCD_CS_N
GPIO[39]	UART1_DCD	
GPIO[40]	PM_INT_N	PM_INT_N
GPIO[41]		EAR_SENSE_N
GPIO[42]	PS_HOLD	PS_HOLD
GPIO[43]		LCD_RESET_N
GPIO[44]	UART1_DTR	
GPIO[45]	KYPD_MEMO	KEY_COL(5)
GPIO[46]	KEYSENSE2_N	KEY_ROW(2)
GPIO[47]	KEYSENSE3_N	KEY_ROW(3)
GPIO[48]	KEYSENSE4_N	KEY_ROW(4)
GPIO[49]	KYPD_9	KEY_COL(4)
GPIO[50]	KYPD_11	KEY_COL(3)
GPIO[51]	KYPD_13	KEY_COL(2)
GPIO[52]	KYPD_15	KEY_COL(1)
GPIO[53]	KYPD_17	KEY_COL(0)

3. TECHNICAL BRIEF

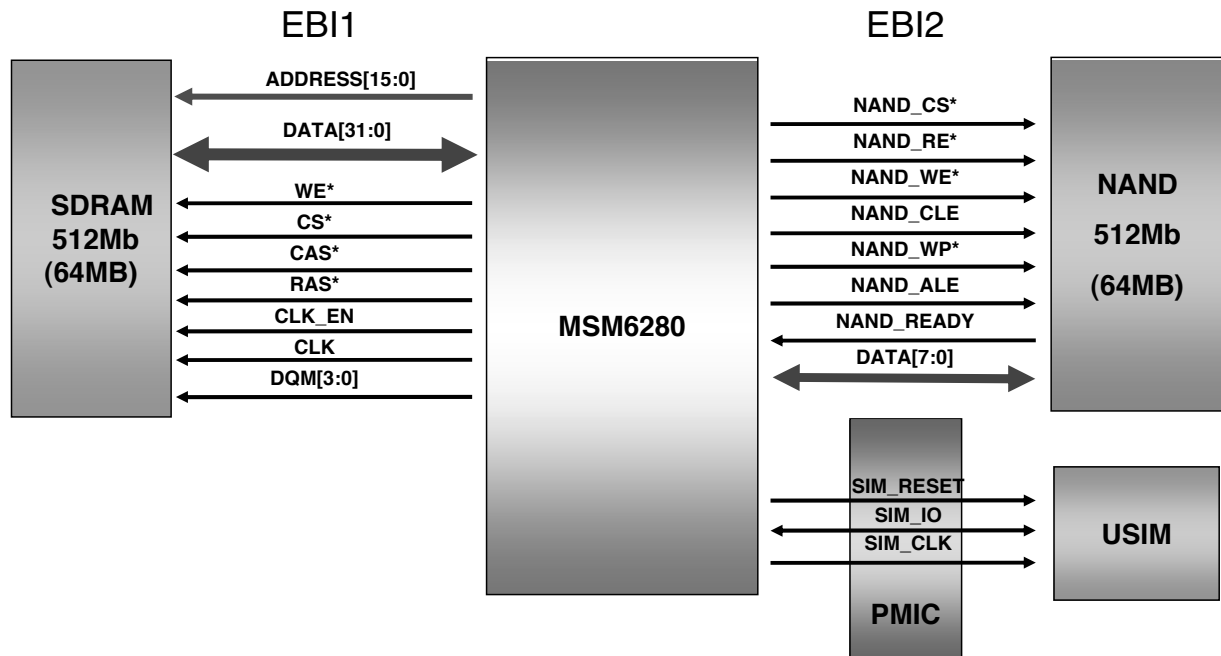
GPIO#	GPIO(RFCMOS)	CU400
GPIO[54]	CAM_DATA2	CAM_DATA(0)
GPIO[55]	CAM_DATA3	CAM_DATA(1)
GPIO[56]	CAM_DATA4	CAM_DATA(2)
GPIO[57]	CAM_DATA5	CAM_DATA(3)
GPIO[58]	CAM_DATA6	CAM_DATA(4)
GPIO[59]	CAM_DATA7	CAM_DATA(5)
GPIO[60]	CAM_DATA8	CAM_DATA(6)
GPIO[61]	CAM_DATA9	CAM_DATA(7)
GPIO[62]	KEYSENSE0_N	KEY_ROW(0)
GPIO[63]	KEYSENSE1_N	KEY_ROW(1)
GPIO[64]	UART_RI	
GPIO[65]		HOOK_SENSE
GPIO[66]	MONO_STEREO_HS_DET_N	
GPIO[67]	SDRAM_DATA(16)	SDRAM_DATA(16)
GPIO[68]	SDRAM_DATA(17)	SDRAM_DATA(17)
GPIO[69]	SDRAM_DATA(18)	SDRAM_DATA(18)
GPIO[70]	SDRAM_DATA(19)	SDRAM_DATA(19)
GPIO[71]	SDRAM_DATA(20)	SDRAM_DATA(20)
GPIO[72]	SDRAM_DATA(21)	SDRAM_DATA(21)
GPIO[73]	SDRAM_DATA(22)	SDRAM_DATA(22)
GPIO[74]	SDRAM_DATA(23)	SDRAM_DATA(23)
GPIO[75]	SDRAM_DQM(3)	SDRAM_DQM(3)
GPIO[76]	LCD_RESET_N	
GPIO[77]		
GPIO[78]	SDRAM_DQM(2)	SDRAM_DQM(2)
GPIO[79]	SDRAM_ADDR(0)	SDRAM_ADDR(0)
GPIO[80]	GRFC14	SPK_AMP_EN
GPIO[81]	CAM_DATA1	
GPIO[82]	CAM_PCLK	CAM_PCLK
GPIO[83]	CAM_DATA0	
GPIO[84]	UART3_TX	
GPIO[85]	UART3_RX	
GPIO[86]	UART3_CTS_N	
GPIO[87]	UART3_RFR_N	
GPIO[88]	USIM_DATA	MSM_USIM_DATA
GPIO[89]	USIM_PWR_EN	
GPIO[90]	USIM_RESET	MSM_USIM_RST_N
GPIO[91]	USIM_CLK	MSM_USIM_CLK
GPIO[92]		FOLDER_DETECT
GPIO[93]	SBST1	
GPIO[94]	TCXO_EN	TCXO_EN
GPIO[95]	UART1_TXD(NAND_BOOT_ERR)	UART_TXD
GPIO[96]	UART1_RXD	UART_RXD
GPIO[97]	IrDA_SD	
GPIO[98]	PA_POWER_CTL_N	
GPIO[99]	SDCC_DAT(1)	
GPIO[100]	SDCC_DAT(2)	
GPIO[101]	SDCC_DAT(3)	
GPIO[102]	GRFC11	
GPIO[103]	GRFC12	
GPIO[104]	MDP_VSYNC_SEC	LCD_MAKER_ID
GPIO[105]	MDP_VSYNC_PRI	ON_SW_N

3. TECHNICAL BRIEF

3.3 RF Block Diagram

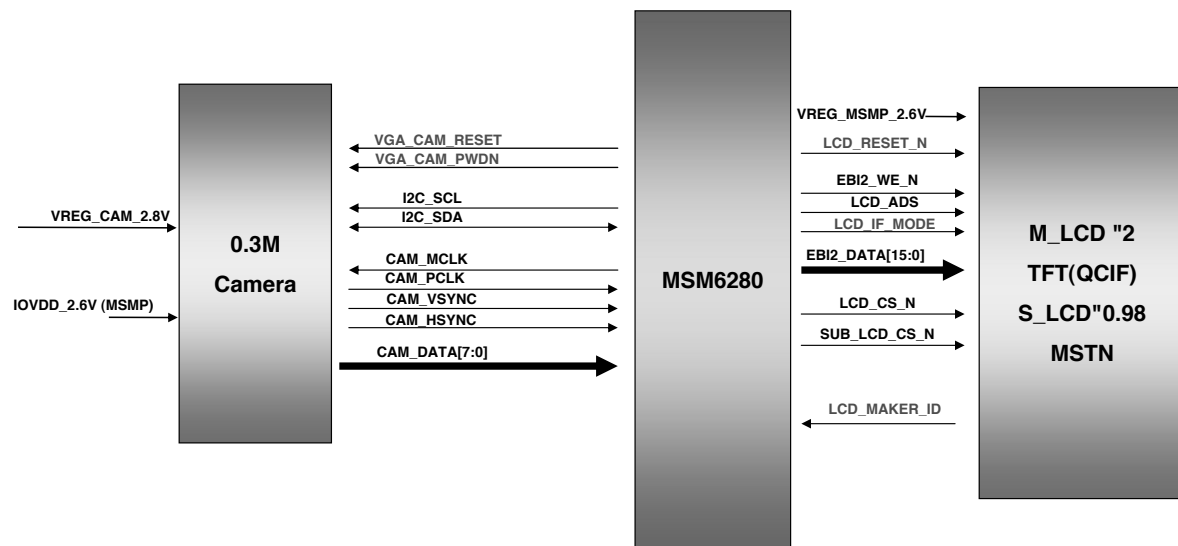


3.4 Memory

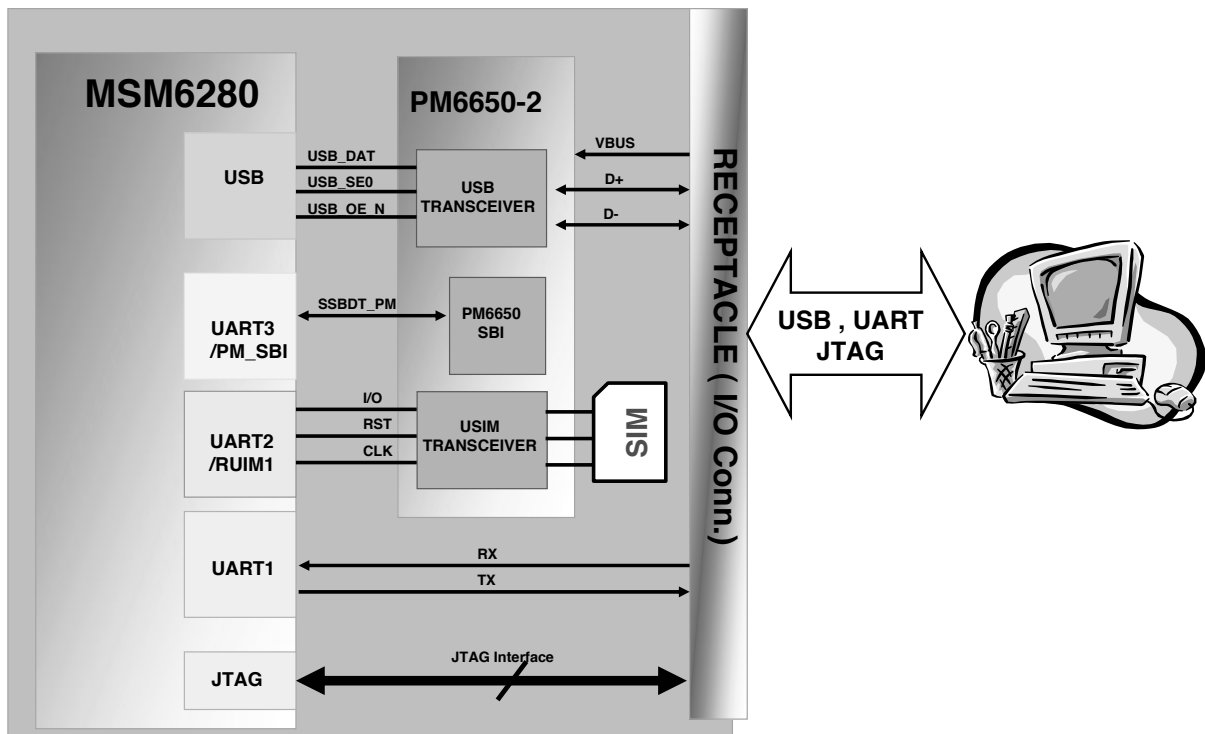


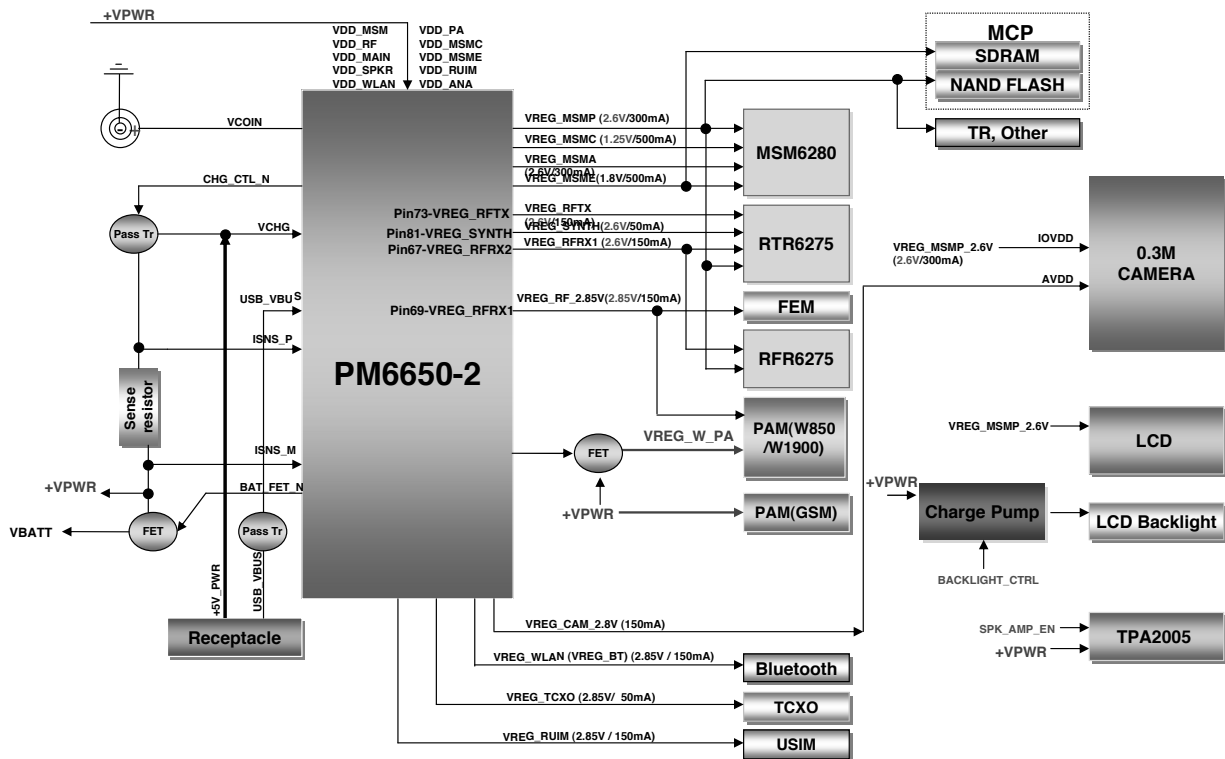
3. TECHNICAL BRIEF

3.5 Camera & LCD Interface

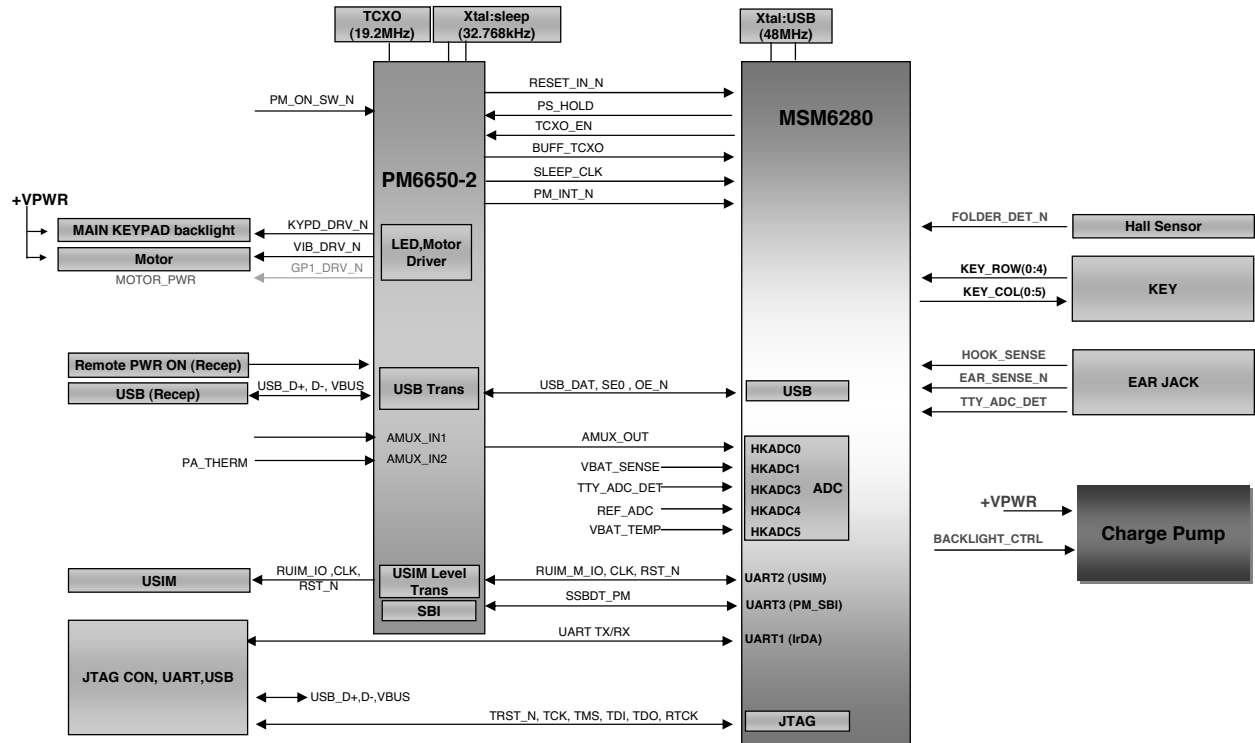


3.6 Interface USB,UART,SIM,JTAG



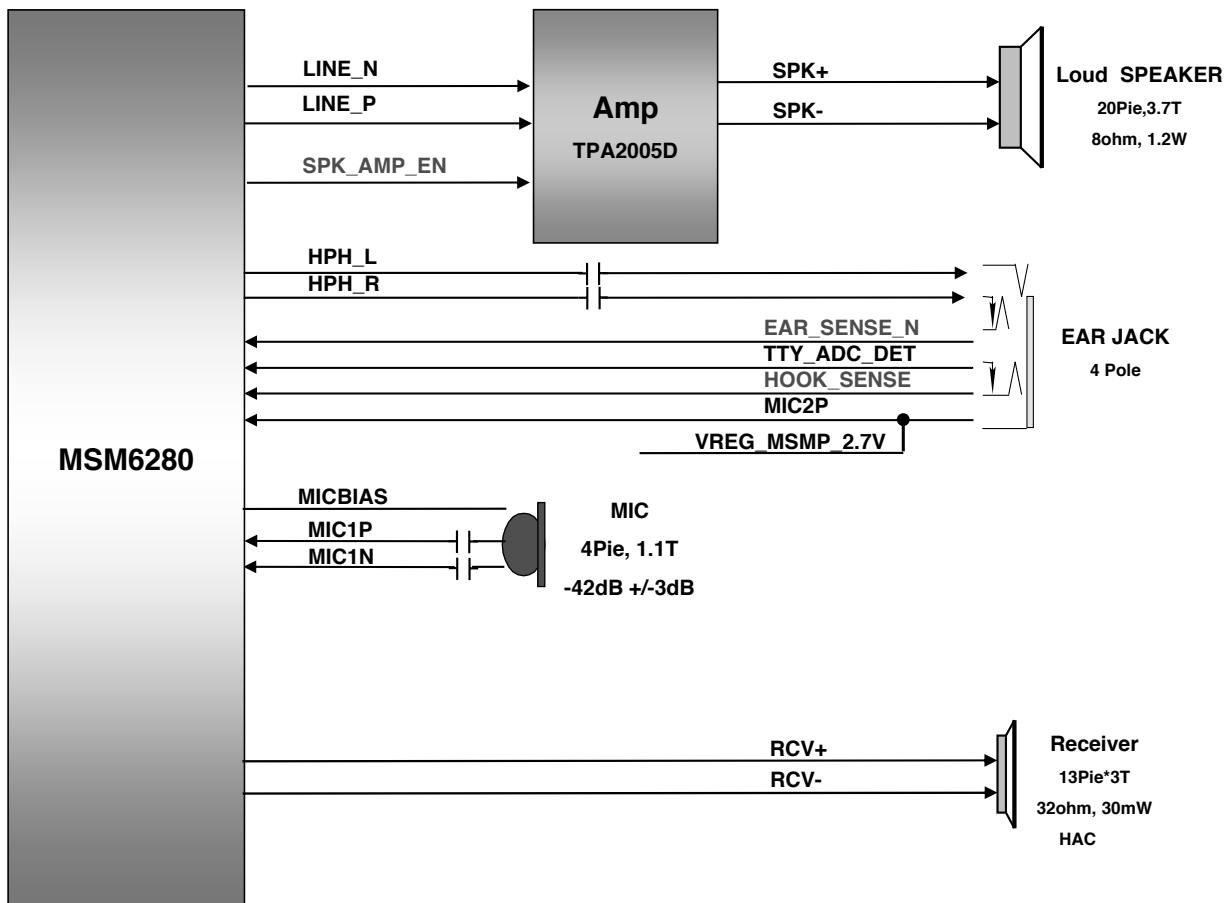


3.8 Peripheral



3. TECHNICAL BRIEF

3.9 Audio Block Diagram



3. BB Technical Description

3.10 Digital Baseband(DBB/MSM6280)

3.10.1 General Description

A. Features(MSM6280)

- Support for multimode operation - HSDPA, tri-band WCDMA (UMTS), quad GSM/GPRS/EDGE, GPS
- Support for HSDPA downlink up to 7.2Mbps (initial commercial release will support 3.6Mbps
- HSDPA. Later releases will have support for 7.2 Mbps HSDPA)
- Support for WCDMA (UMTS) uplink data rate up to 384 kbps
- High-performance ARM926EJ-S running at up to 225 MHz (later at 270 MHz for 7.2 Mbps HSDPA)
- ARM Jazelle Java hardware acceleration for faster Java-based games and other applets
- QDSP4000 high-performance DSP cores
- Integrated gpsOne position location technology functionality
- Integrated Bluetooth 1.2 baseband processor for wireless connectivity to peripherals
- Qcamera, with 15 fps QVGA viewfinder resolution, and support for 4 MP camera sensors
- Direct interface to digital camera module with video front end (VFE) image processing
- True 3D graphics for advanced wireless gaming
- SecureMSM v2.0 includes support for Open Mobile Alliance (OMA) DRM v2.0, SIM-lock and IMEI integrity. Support for Q-fuse.
- Audio on par with portable music players
- Vocoder support (AMR, FR, EFR, HR)
- Advanced 14 x 14 mm, 0.5 mm pitch, 409-pin lead-free CSP packaging technology
- SD/SDIO hardware support

3. TECHNICAL BRIEF

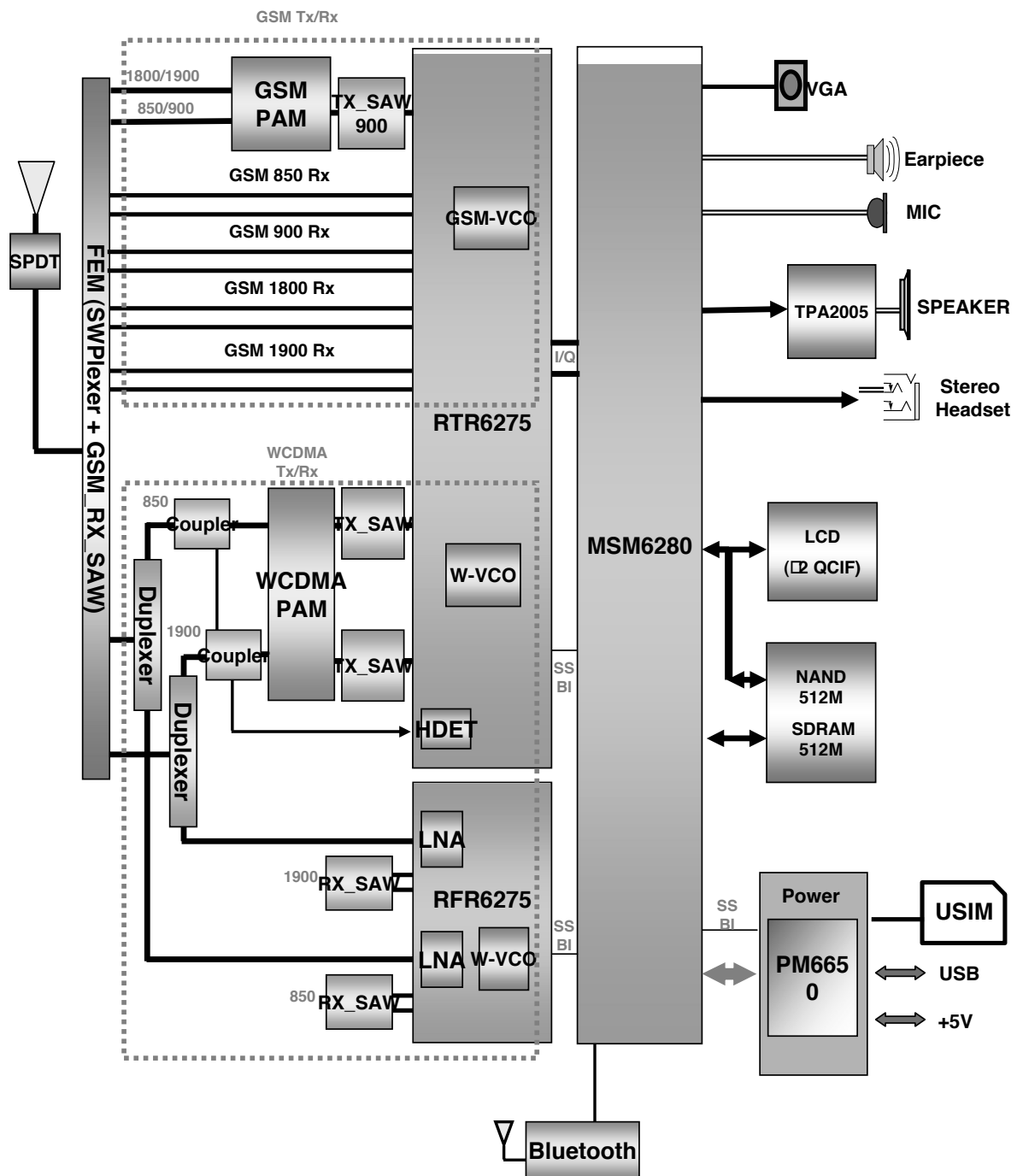


Figure. Simplified Block Diagram

3.10.2 Block Diagram(MSM6280)

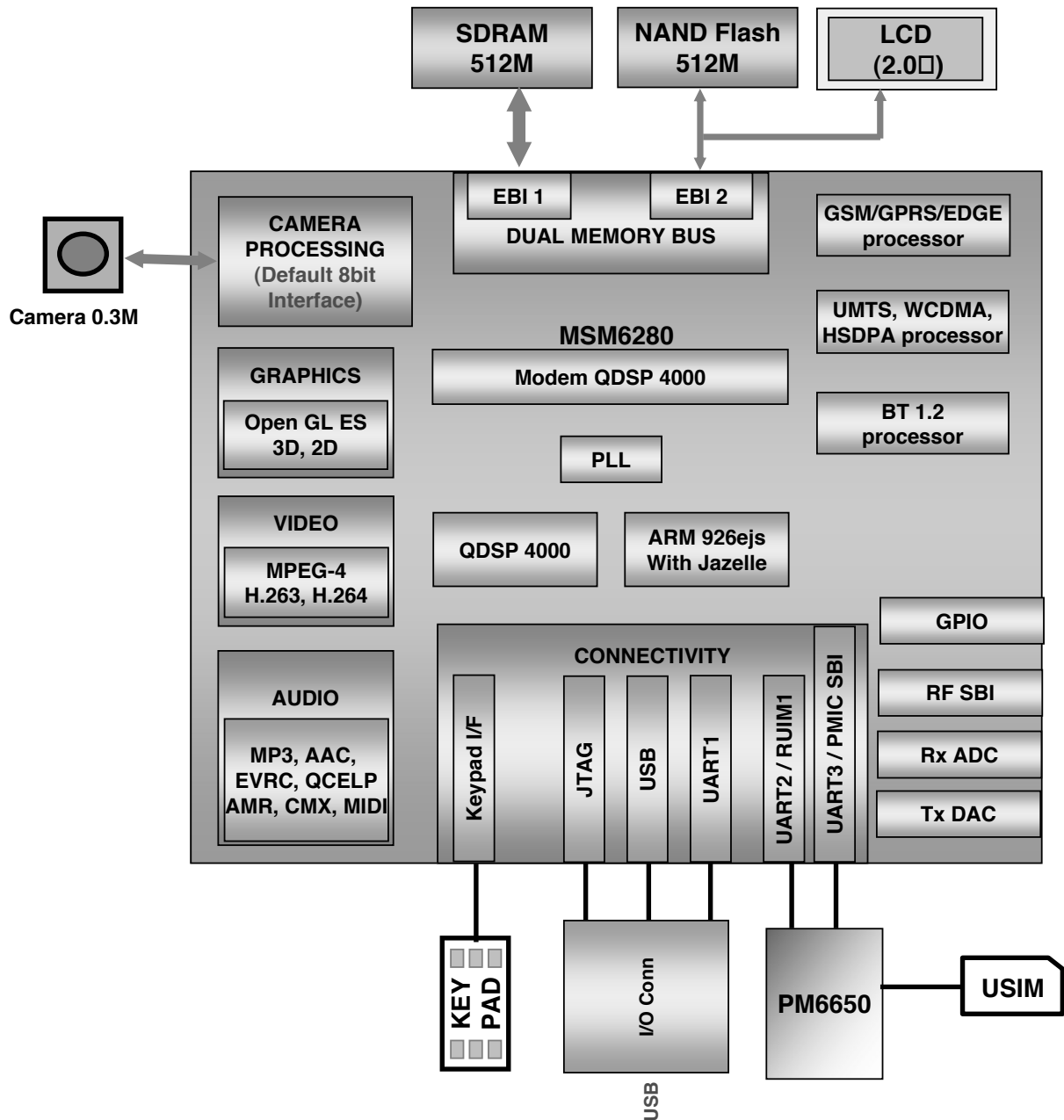


Figure. Simplified Block Diagram of MSM6280

3. TECHNICAL BRIEF

3.11 Subsystem(MSM6280)

3.11.1 ARM Microprocessor Subsystem

The MSM6280 device uses an embedded ARM926EJ-S microprocessor. This microprocessor, through the system software, controls most of the functionality for the MSM, including control of the external peripherals such as the keypad, LCD, SDRAM, and NAND-Flash devices. Through a QUALCOMM proprietary serial bus interface (SBI) the ARM926EJ-S configures and controls the functionality of the RTR6275, RFR6275 and PM6650 devices.

3.11.2 WCDMA R99 features

The MSM6280 device supports release 99 June 2004 of the W-CDMA FDD standard, including the following features:

- All modes and data rates for W-CDMA frequency division duplex (FDD), with the following restrictions:
 - ❑ The downlink supports the following specifications:
 - Up to four physical channels, including the broadcast channel (BCH), if present
 - Up to three dedicated physical channels (DPCHs)
 - Spreading factor (SF) range support from 4 to 256
 - The following transmit diversity modes are supported:
 - Space time transmit diversity (STTD)
 - Time-switched transmit diversity (TSTD)
 - Closed-loop feedback transmit diversity (CLTD)
- The uplink supports the following specifications:
 - ❑ The uplink provides the following UE support:
 - One physical channel, eight TrCH, and 16 TrBks starting at any frame boundary
 - A maximum data rate of 384 kbps
 - ❑ Full SF range support from 4 to 256
- SMS (CS and PS)
- PS data rate - 384 kbps DL / 384 kbps UL
- CS data rate - 64 kbps DL / 64 kbps UL
- AMR (all rates)

3.11.3 GSM features

The following GSM modes and data rates are supported by the MSM6280 device hardware. Support modes conform to release '99 specifications of the sub-feature.

- Voice features
 - ❑ FR
 - ❑ EFR
 - ❑ AMR
 - ❑ HR
 - ❑ A5/1, A5/2, and A5/3 ciphering

- Circuit-switched data features

- ☐ 9.6k
- ☐ 14.4k
- ☐ Fax
- ☐ Transparent and non-transparent modes for CS data and fax
- ☐ No sub-rates are supported.

3.11.4 GPRS features

- Packet switched data (GPRS)

- ☐ DTM (Simple Class A) operation
- ☐ Multi-slot class 12 data services
- ☐ CS schemes: CS1, CS2, CS3, and CS4
- ☐ GEA1, GEA2, and GEA3 ciphering

- Maximum of four Rx timeslots per frame

3.11.5 EDGE features

- EDGE E2 power class for 8 PSK
- DTM (simple Class A), multi-slot class 12
- Downlink coding schemes - CS 1-4, MCS 1-9
- Uplink coding schemes - CS 1-4, MCS 1-9
- BEP reporting
- SRB loopback and test mode B
- 8-bit, 11-bit RACH
- PBCCH support
- 1 phase/2 phase access procedures
- Link adaptation and IR
- NACC, extended UL TBF.

3.11.6 MSM6280 device audio processing features

- Integrated wideband stereo CODEC
 - ☐ 16-bit DAC with typical 88 dB dynamic range
 - ☐ Supports sampling rates up to 48 kHz on the speaker path and 16 kHz on the microphone path
- VR- Voice mail + voice memo
- Acoustic echo cancellation
- Audio AGC
- Audio Codecs: AMR-NB, AAC, AAC Plus, Enhanced AAC Plus, Windows Audio v9, Real Audio 8 (G2)
- Internal vocoder supporting AMR, FR, EFR, and HR

3. TECHNICAL BRIEF

3.11.7 MSM6280 microprocessor subsystem

- Industry standard ARM926EJ-S embedded microprocessor subsystem
 - ❑ 16 kB instruction and 16 kB data cache
 - ❑ Instruction set compatible with ARM7TDMI®
 - ❑ ARM version 5TEJ instructions
 - ❑ Higher performance 5 stage pipeline, Harvard cached architecture
 - ❑ Higher internal CPU clock rate with on-chip cache
- Java hardware acceleration
- Enhanced memory support

Please note that NOR/PSRAM will not be supported on MSM6280.

 - ❑ 75 MHz and 90 MHz bus clock for SDRAM
 - ❑ 32-bit SDRAM
 - ❑ Dual memory buses separating the high-speed memory subsystem (EBI1) from low-speed peripherals (EBI2) such as LCD panels
 - ❑ 1.8 V or 2.6 V memory interface support (excluding EBI1)
 - ❑ NAND FLASH memory interface
 - 8/16-bit data I/O width NAND flash support
 - 1- or 4-bit ECC
 - 512-byte/2KB page-size support
 - 2 chip selects supported for NAND Flash
 - ❑ Boot from NAND
 - ❑ Low-power SDRAM (LP-SDRAM) interface
- Internal watchdog and sleep timers

3.11.8 Supported interface features

- USB On-the-Go core supports both slave and host functionality
- Three universal asynchronous receiver transmitter (UART) serial ports
- USIM controller (via UART)
- Integrated 4-bit secure digital (SD) controller for SD and Mini SD cards
- Parallel LCD interface
- General-purpose I/O pins
- External keypad interface

3.11.9 Supported multimedia features

- Provide additional general purpose MIPS by using:
 - ❑ Two QDSP4000s
 - ❑ Dedicated hardware accelerators and compression engines
- Improve Java, BREW, and game performance
 - ❑ Integrated Java and 2D/3D graphics accelerator with Sprite engine
- Enable various accessories via USB host connectivity.
 - ❑ Integrated USB host controller functionality
- Enable compelling visual and audio applications.

Qcamera™

- High-quality digital camera processing, supporting CCD or CMOS image sensors up to 4-megapixel with 15 fps capture rate
- 15 fps QVGA viewfinder

Qtv™

- Audio and video decoder that supports VOD, MOD and Broadcast multimedia services.
- Audio Codecs supported: AMR-NB, AAC, AAC Plus, Enhanced AAC Plus, Windows® Audio v9, RealAudio® v8
- Integrated stereo wideband Codec for music/digital clips
- CMX
- Video Codecs supported: MPEG-4, H.263, H.264, Windows Media® v9 and RealNetworks® v10

Video telephony services: Qvideophone™

- A two-way mobile video conferencing solution that delivers 15 fps @ QCIF
- Video Codecs supported: MPEG-4 and H.263
- Audio Codecs supported: AMR-NB.

Qcamcorder™

- Real time mobile video encoder
- Video Codecs supported: MPEG-4, H.263, H.264
- Audio Codecs supported: AMR-NB, AAC
- Recording performance: 15 fps @ QVGA, 384 kbps

gpsOne™

- Integrated gpsOne processing
- Standalone gpsOne mode in which the handset acts as a GPS receiver

CMX™ (MIDI and still image, animation, text, LED/vibrate support)

- 72 simultaneous polyphonic tones
- 44 kHz sampling rate
- 512 kB wave table
- Support of universal file formats
 - Standard MIDI Format (SMF)
 - SP-MIDI
 - SMAF Audio playback (MA-2, MA-3, MA-5)
 - XMF/OLS
 - MFi (requires Docomo license)
- PNG decoder
- Pitch bend range support
- LED/vibrate support
- Scalable Vector Graphics (SVG- Tiny 1.1 + SVG Tiny 1.2)

3. TECHNICAL BRIEF

- MLZ decoder
- Integrated PNG/SAF A.T.

Processor	MSM6280 device
Process technology	ARM926 EJ-S-225 MHz and 270 MHz (for 3.6 Mbps and 7.2 Mbps HSDPA) ADSP-75 MHz and 90 MHz (for 3.6 Mbps and 7.2 Mbps HSDPA) MDSP-61.44 MHz
Broadcast	90 nm
High speed serial interface	TSIF (dedicated)
Security/digital rights management	Mobile display digital interface (MDDI)
Supported RF platforms	OMA DRM v2.0 Q-fuse supported
gpsOne	Tri-band UMTS(3U). Platform B (RFCMOS), Platform D (Diversity)
16-bit burst NOR flash + 16-bit or 32-bit burst PSRAM	Not supported
8-bit or 16-bit NAND flash + 32-bit SDRAM	Supported Only 32-bit SDRAM supported
USB	USB-OTG
Qcamcorder	15 fps @ QVGA, 15 fps QVGA viewfinder
Qtv (video decode)	30 fps @ QVGA playback 15 fps @ QVGA streaming
Qvideophone (video telephony)	15 fps @ QCIF
Qcamera (camera interface)	4M pixel support
Audio/video decoders	MP3, AAC, AAC+, Enhanced AAC+ ADPCM, MP4, H.263. H.264, Windows Media, Real
2D/3D graphics HW acceleration	HW-100K triangles/sec

Table 1-1 Summary of MSM6280 device features

3.11.10 Serial Bus Interface(SBI)

The MSM6280 device's SSBI is designed specifically to be a quick, low pin count control protocol for QUALCOMM's RTR6275, RFR6275 and PM6650 ASICs. Using the SSBI, the RTR6275, RFR6275, and PM6650 devices can be configured for different operating modes and for minimum power consumption, extending battery life in Standby mode. The SSBI also controls DC baseband offset errors.

3.11.11 Wideband CODEC

The MSM6280 device integrates a wideband voice/audio CODEC into the mobile station modem (MSM). The CODEC supports two differential microphone inputs, one differential earphone output, one single-ended earphone output, and a differential analog auxiliary interface.

The CODEC integrates the microphone and earphone amplifiers into the MSM6280 device, reducing the external component count to just a few passive components.

The microphone (Tx) audio path consists of a two-stage amplifier with the gain of the second stage set internally. The Rx/Tx paths are designed to meet the ITU-G.712 requirements for digital transmission systems.

3.11.12 Vocoder Subsystem

The MSM6280 device's QDSP4000 supports AMR,FR,EFR and HR. In addition, the QDSP4000 has modules to support the following audio functions: DTMF tone generation, DTMF tone detection, Tx/Rx volume controls, Tx/Rx automatic gain control (AGC), Rx Automatic Volume Control (AVC), EarSeal Echo Canceller (ESEC), Acoustic Echo Canceller (AEC), Noise Suppression (NS), and programmable, 13-tap, Type-I, FIR, Tx/Rx compensation filters. The MSM6280 device's integrated ARM9TDMI processor downloads the firmware into the QDSP4000 and configures QDSP4000 to support the desired functionality.

3.11.13 ARM Microprocessor subsystem

The MSM6280 device uses an embedded ARM926EJ-S microprocessor. This microprocessor, through the system software, controls most of the functionality for the MSM device, including control of the external peripherals such as the keypad, LCD, RAM, ROM, and EEPROM devices. Through a generic single serial bus interface (SSBI) the ARM926EJ-S configures and controls the functionality of the RFR6275, RTR6275, and PM6650 devices.

3.11.14 Mode Select and JTAG Interfaces

The mode pins to the MSM6280 device determine the overall operating mode of the ASIC. The options under the control of the mode inputs are Native mode, which is the normal subscriber unit operation, ETM mode, which enables the built-in trace mode, and test mode for factory testing. The MSM6280 device meets the intent of the ANSI/IEEE 1149.1A-1993 feature list. The JTAG interface can be used to test digital interconnects between devices within the mobile station during manufacture.

3. TECHNICAL BRIEF

3.11.15 General-Purpose Input/Output Interface

The MSM6280 device has general-purpose bidirectional input/output pins. Some of the GPIO pins have alternate functions supported on them. The alternate functions include USB interface, additional RAM, ROM, general-purpose chip selects, parallel LCD interface, and a UART interface. The function of these pins is documented in the various software releases.

3.11.16 UART

The MSM6280 device employs three UARTs. UART1 has dedicated pins while UART2 and UART3 share multiplexed pins.

- UART1 for data
- UART2 (can be used for USIM interface)
- UART3 for data

3.11.17 USB

The MSM6280 device integrates a universal serial bus (USB) controller that supports both unidirectional and bidirectional transceiver interfaces. The USB controller acts as a USB peripheral communicating with the USB host.

3.12 Power Block

3.12.1 General

MSM6280, included RF, is fully covered by PM6650(Qualcomm PMIC). PM6650 cover the power of MSM6280, MSM memory, RF block, Bluetooth, Micro SD, USIM and TCXO.

Major power components are :

PM6650(U401) : Phone power supply

AAT3152IWP(U501) : LCD Backlight charge pump

3.12.2 PM6650

The PM6650 device (Figure 1-1) integrates all wireless handset power management. The power management portion accepts power from all the most common sources - battery, external charger, adapter, coin cell back-up - and generates all the regulated voltages needed to power the appropriate handset electronics. It monitors and controls the power sources, detecting which sources are applied, verifying that they are within acceptable operational limits, and coordinates battery and coin cell recharging while maintaining the handset electronics supply voltages. Eight programmable output voltages are generated using low dropout voltage regulators, all derived from a common trimmed voltage reference.

A dedicated controller manages the TCXO warm-up and signal buffering, and key parameters (under-voltage lockout and crystal oscillator signal presence) are monitored to protect against detrimental conditions.

MSM device controls and statuses the PM6650 IC using Single Serial Bus Interface (SSBI) supplemented by an Interrupt Manager for time-critical information. Another dedicated IC Interface circuit monitors multiple trigger events and controls the power-on sequence.

3. TECHNICAL BRIEF

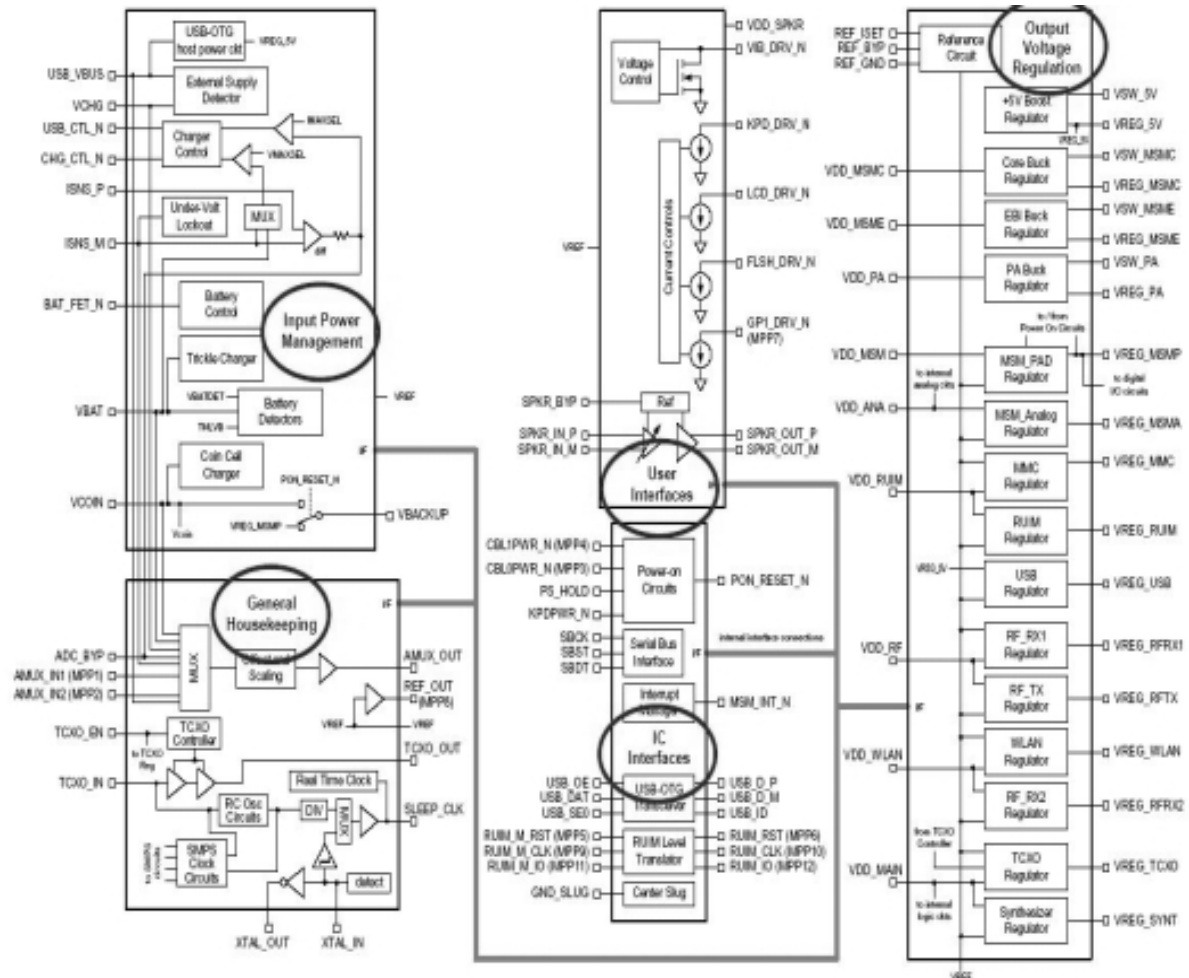
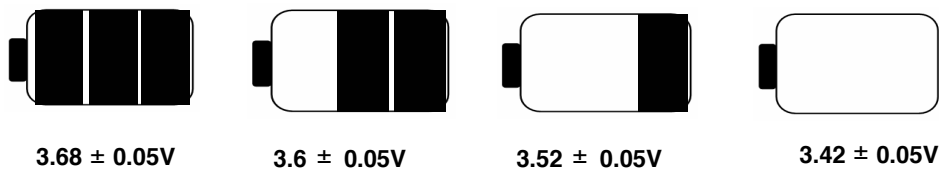


Figure. PM6650 Functional Block Diagram

A programmable charging block in PM6650 is used for battery charging. It is possible to set limits for the charging current. The external supply typically connects directly to pin (VCHG). The voltage on this pin (VCHG) is monitored by detection circuitry to ascertain whether a valid external supply is applied or not. For additional accuracy or to capture variations over time, this voltage is routed internally to the housekeeping ADC via the analog multiplexer. PM6650 circuits monitor voltages at VCHARGER and ICHARGE pins to determine which supply should be used and when to switch between the two supplies. These pins are connected to the Source (or emitter) and Drain (or collector) contacts of the pass transistor respectively.



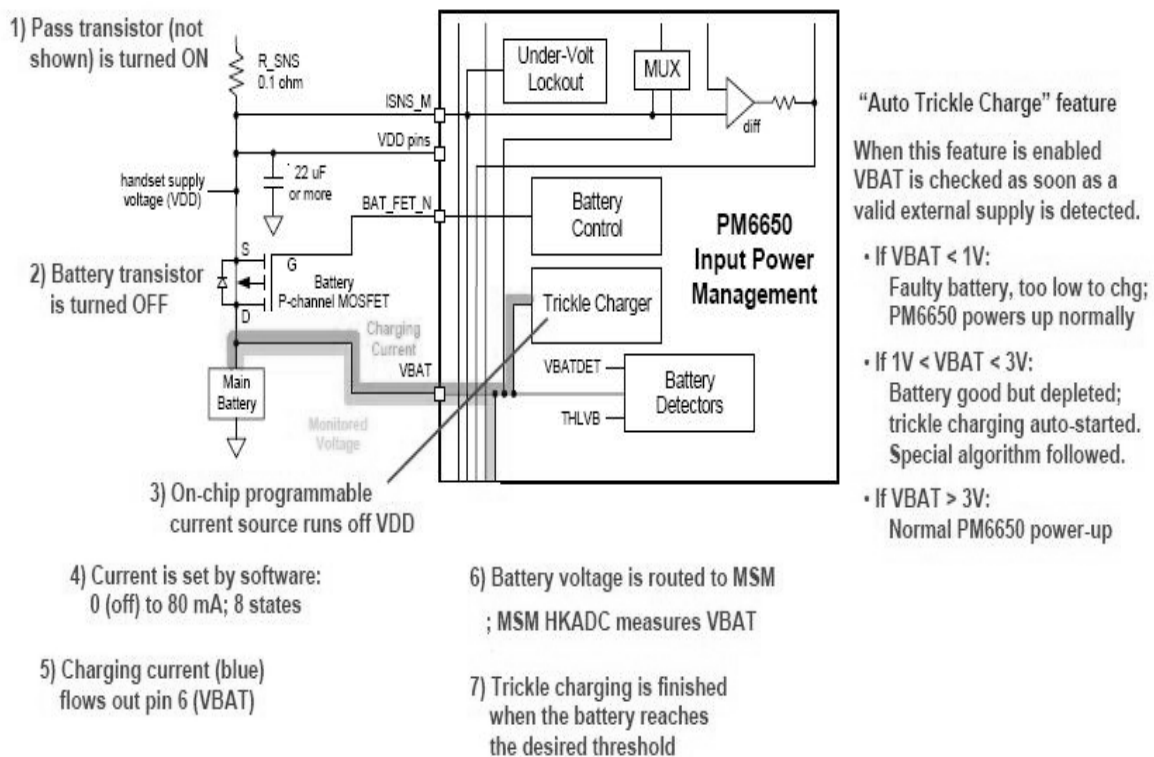
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Trickle Charging

Trickle Charging of the main battery, enabled through SBI control and powered from V_{DD} , is provided by the PM6650 IC. The trickle charger is on-chip programmable current source that supplies current from V_{DD} to pin (VBAT). Trickle charging can be used for lithium-ion and nickel-based batteries, with its performance specified below (3.2V). The charging current is set to 80mA.

Parameter	Min	Typ	Max	Unit
Trickle Current	60	80	100	mA



Constant Current Charging

The PM6650 IC supports constant current charging of the main battery by controlling the charger pass transistor and the battery transistor. The constant current charging continues until the battery reaches its target voltage, 4.2V.

Constant Voltage Charging

Constant voltage charging begins when the battery voltage reaches a target voltage, 4.2V.

The end of constant voltage charging is commonly detected 10% of the full charging current (110mA)

- Charging Method : CC & CV (Constant Current & Constant Voltage)
- Maximum Charging Voltage : 4.2V
- Maximum Charging Current : 650mA
- Nominal Battery Capacity : 1100 mAh
- Charger Voltage : 4.6V
- Charging time : Max 3h (Except time trickle charging)
- Full charge indication current (icon stop current) : 110mA
- Low battery POP UP : Idle - 3.42V, Dedicated(GSM/WCDMA) - 3.52V
- Low battery alarm interval : Idle - 3 min, Dedicated - 1min
- Cut-off voltage : 3.28V

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3.13 External memory interface

A. MSM6280

The MSM6280 device was designed to provide two distinct memory interfaces. EBI1 was targeted for supporting high speed synchronous memory devices. EBI2 was targeted towards supporting slower asynchronous devices such as LCD, NAND flash, SRAM, etc.

- EBI1 Features

- 16 bit static and dynamic memory interface
- 32 bit dynamic memory interface
- 24 bits of address for static memory devices which can support up to 32MBytes on each chip select
- Synchronous burst memories supported (burst NOR, burst PSRAM)
- Synchronous DRAM memories supported
- Byte addressable memory supporting 8 bit, 16 bit and 32 bit accesses
- Pseudo SRAM (PSRAM) memory support

- EBI2 Features

- Support for asynchronous FLASH and SRAM(16bit & 8bit).
- Interface support for byte addressable 16bit devices(UB_N & LB_N signals).
- 2Mbytes of memory per chip select.
- Support for 8 bit/16bit wide NAND flash.
- Support for parallel LCD interfaces, port mapped or memory mapped(18 or 16 bit)

- 512Mb NAND(8bit) flash memory + 512Mb SDRAM (32bit)

- 1-CS(Chip Select) are used

Interface Spec				
Device	Part Name	Maker	Read Access Time	Write Access Time
FLASH	TY90009800C0GG	Toshiba	50 ns	50 ns
SDRAM	TY90009800C0GG	Toshiba	15 ns	15 ns

Table#1. External memory interface for CU405

3.14 H/W Sub System

3.14.1 RF Interface

A. RTR6275(WCDMA_Tx, GSM_Tx/Rx)

MSM6280 controls RF part(RTR6275) using these signals.

- SBST : SSBI I/F signals for control Sub-chipset
- PA_ON1, PA_ON2 : Power AMP on RF part
- RX0_I/Q_M/P, TX_I/Q_M/P: I/Q for T/Rx of RF
- TX_AGC_ADJ : control the gain of the Tx signal prior to the power amplifier

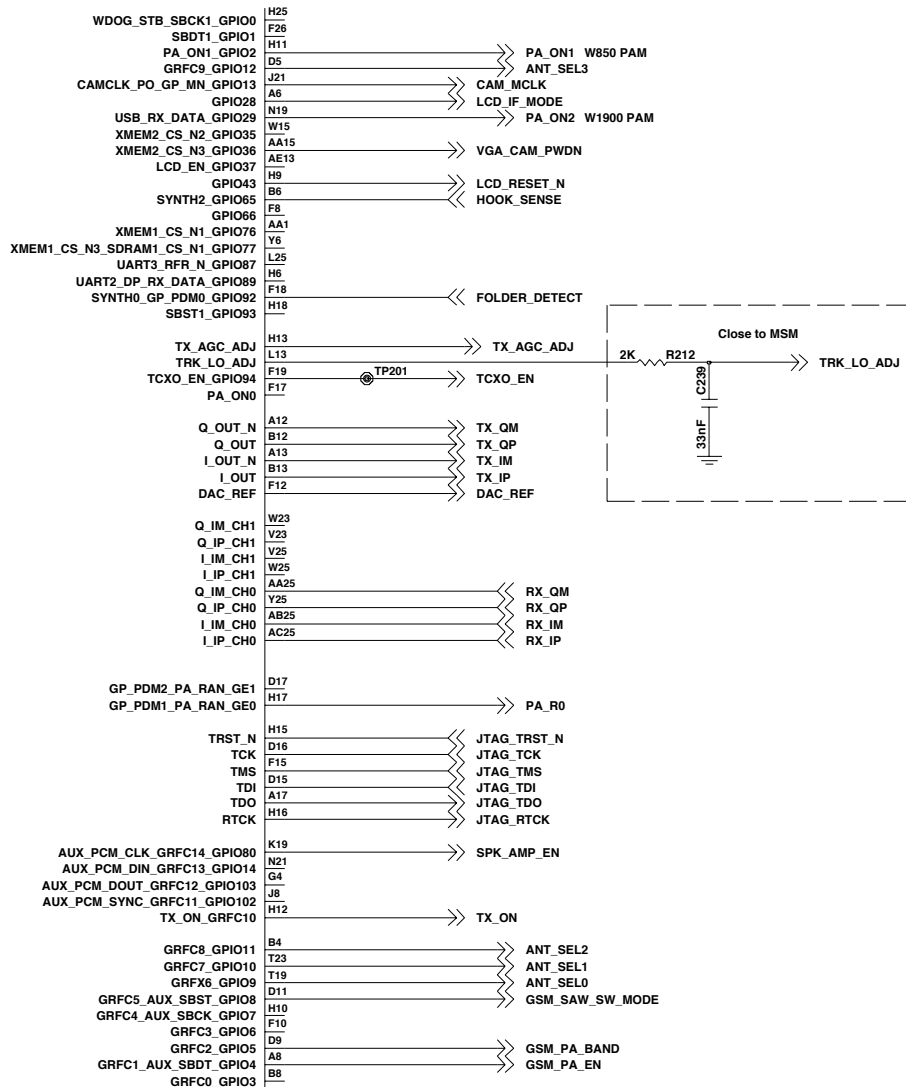


Figure. Schematic of RF Interface of MSM6280

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B. RFR6275(WCDMA_Rx)

- SBDT: SSBI I/F signals for control Sub-chipset
- RX0_I/Q_M/P : I/Q for Rx of RF

C. the others

- TRK_LO_ADJ : TCXO(19.2M) Control
- PA_ON1 : WCDMA(850) TX Power Amp Enable
- PA_ON2: WCDMA(1900) TX Power Amp Enable
- ANT_SEL[0-3] : Ant Switch Module Mode Selection(WCDMA,GSM Tx/Rx,DCS-PCS Tx/Rx)
- GSM_PA_BAND : GSM/DCS-PCS Band Selection of Power Amp
- GSM_PA_RAMP : Power Amp Gain Control of APC_IC
- GSM_PA_EN : Power Amp Gain Control Enable of APC_IC
- GSM_SAW_SW_MODE: GSM SAW Filter Switch

3.14.2 MSM Sub System

3.14.2.1 USIM Interface

SIM interface scheme is shown in Figure.

And, there control signals are followed

- USIM_CLK : USIM Clock
- USIM_Reset : USIM Reset
- USIM_Data : USIM Data T/Rx

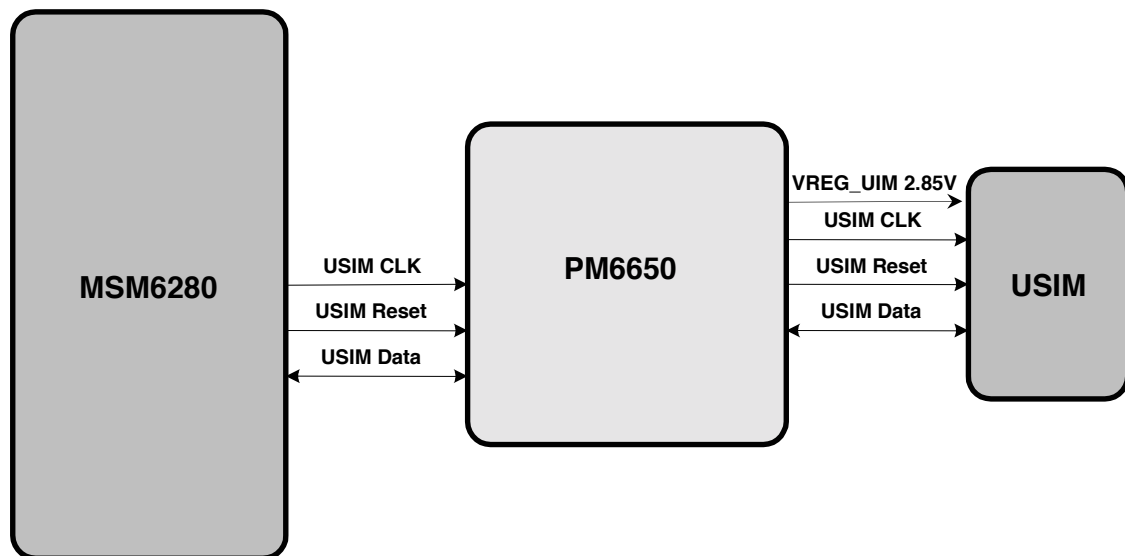


Figure. SIM Interface

3.14.2.2. UART Interface

UART signals are connected to MSM GPIO through IO connector with 115200 bps speed.

GPIO_Map	Name	Note
GPIO_96	UART_RXD	Data_Rx
GPIO_95	UART_TXD	Data_Tx

Table. UART Interface

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3.14.2.3. USB

The MSM6280 device contains a Universal Serial Bus (USB) interface to provide an efficient interconnect between the mobile phone and a personal computer (PC). The USB interface of the MSM6280 was designed to comply with the definition of a peripheral as specified in USB Specification, Revision 1.1. Therefore, by definition, the USB interface is also compliant as a peripheral with the USB Specification, Revision 2.0. The USB Specification Revision 1.1 defines two speeds of operation, namely low-speed (1.5 Mbps) and full-speed (12 Mbps), both of which are supported by the MSM6280.

Name	Note
USB_DAT	Data to/from MSM
USB_SE0	Data to/from MSM
USB_OE_N	Out-Put Enable of Transceiver
USB_VBUS	USB_Power From Host(PC)
USB_D+	USB Data+ to Host
USB_D-	USB Data- to Host

Table. USB Signal Interface

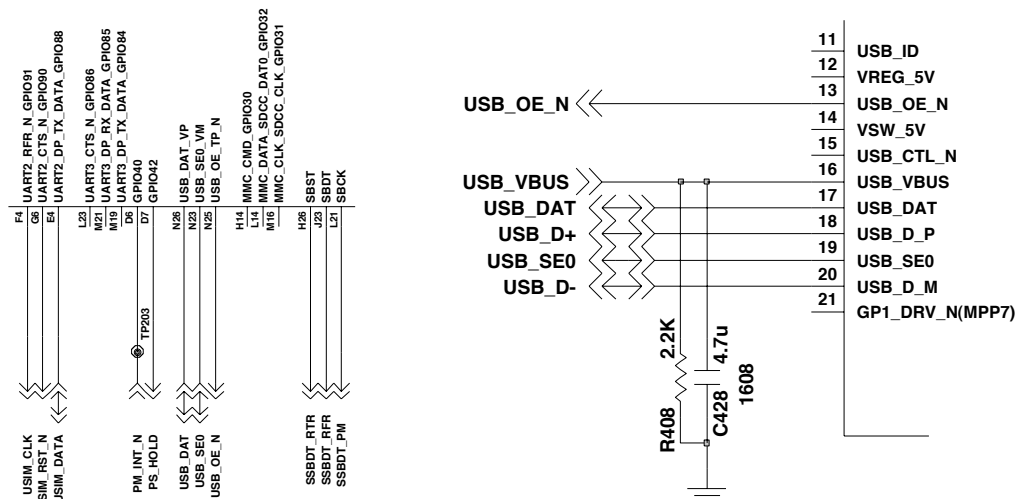


Figure. Schematic of USB block(MSM6280Side & PM6650 Side)

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CU405 have a protective circuit for booting from USB. When the phone is booting from USB_VBUS without Battery, booting current is insufficient. Sometimes that can break the USB port of a computer. For this reason, CU405 do not support booting from USB.

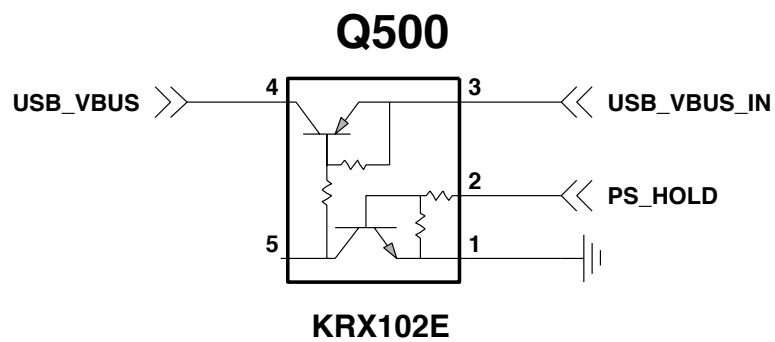


Figure. Schematic of USB protective circuit

3. TECHNICAL BRIEF

3.14.3 HKADC(House Keeping ADC)

The MSM6280 device has an on-chip 8-bit analog-to-digital converter (HKADC) which is tended to digitize DC signals corresponding to analog parameters such as battery voltage, temperature, and RF power levels. The MSM6280 device has six analog input pins which are multiplexed to the input of the internal HKADC.

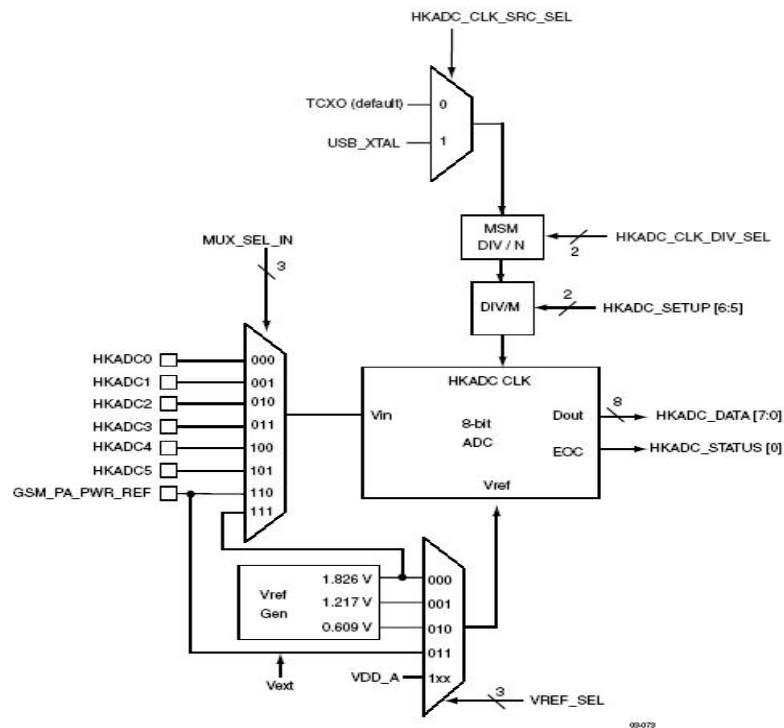


Figure. MSM6280HKADC Block diagram

ADC Ch#	Signal Name	Note
HKADC0	AMUX_OUT	RF PAM Temperature Check
HKADC1	VBATT_SENSE	Battery voltage level
HKADC2	REF_ADC	ADC Reference voltage
HKADC3	TTY_ADC_DET	Ear jack Detection for TTY
HKADC4	PCB_Rev_ADC	PCB Version Check
HKADC5	Battery_THERM	Battery Temperature Check

Table. HKADC channel table

3.14.4 Key Pad

There are 24 buttons and 5 side keys in Figure. Shows the Keypad circuit. 'END' Key is connected On_SW to PMIC(PM6650).

	COL0	COL1	COL2	COL3	COL4	COL5
ROW0			Multi	CLR	MENU	Side (up)
ROW1	1	2	3	LEFT	UP	Side (down)
ROW2	4	5	6	OK	Right	Side PTT
ROW3	7	8	9	SEND	SEARCH	CAM
ROW4	*	0	#	Down	BACK	SPK

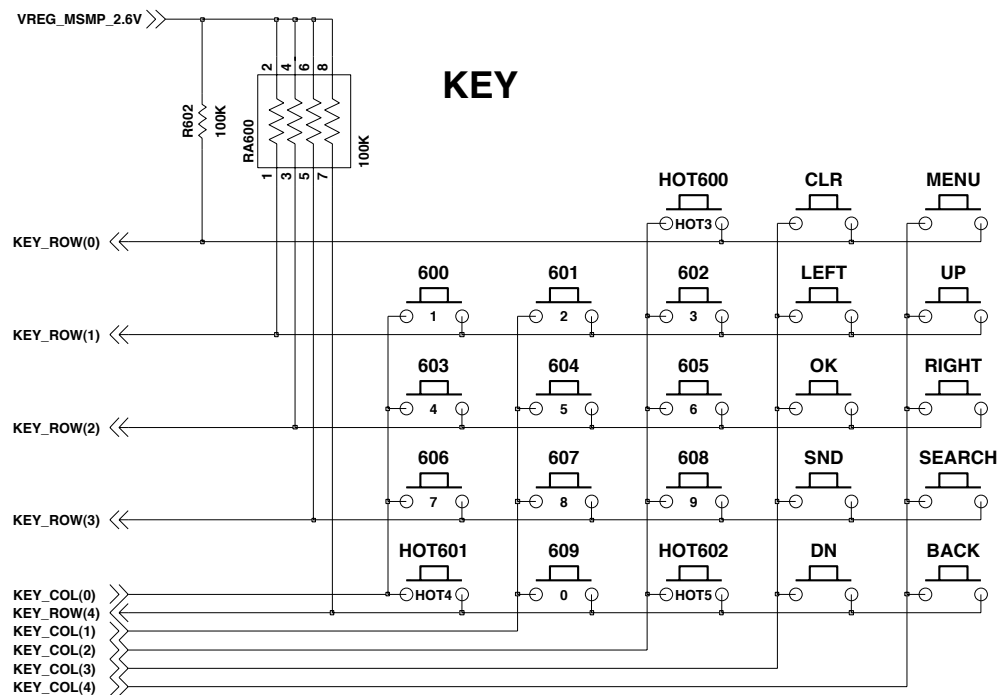


Figure. Keypad Circuit

3. TECHNICAL BRIEF

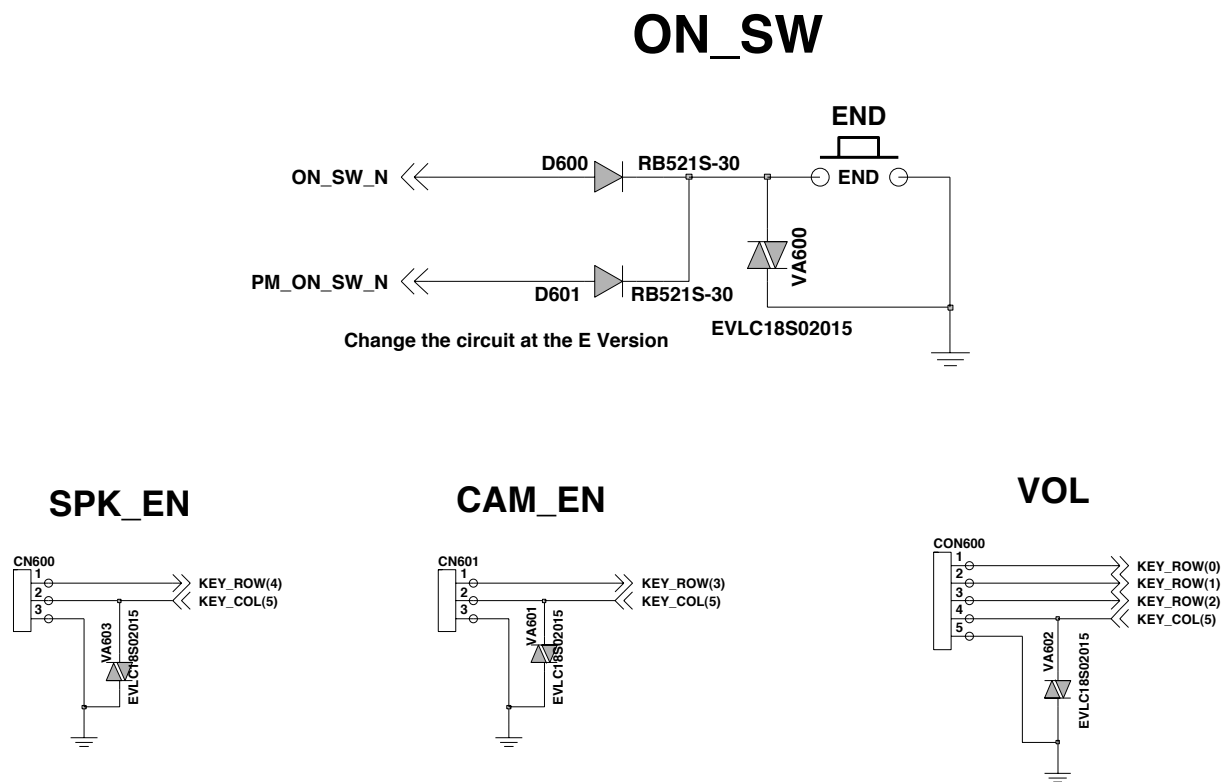
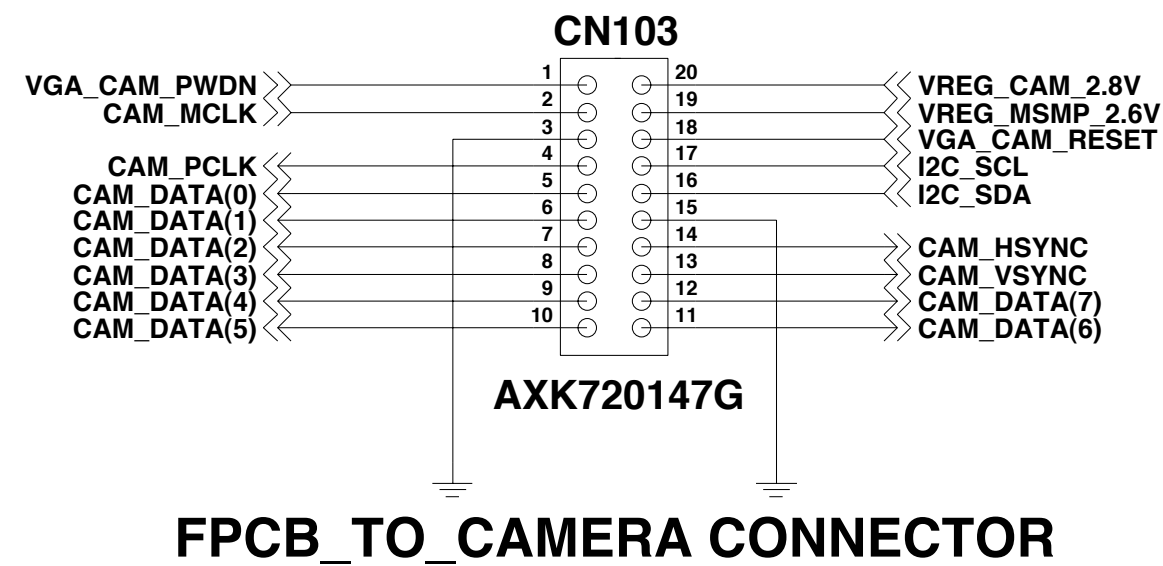


Figure. Keypad Circuit (Side KEY)

3.14.5 Camera Interface

CU405 Installed a 0.3M Pixel VGA Camera.

Below figure shows the camera board to board connector and camera I/F signal.



3. TECHNICAL BRIEF

The Camera module is connected to LCD FPCB with 20pin Board to Board connector (AXK720147). Its interface is dedicated camera interface port in MSM6280. The camera port supply 12MHz master clock to camera module and receive 24MHz pixel clock (15fps), vertical sync signal, horizontal sync signal, reset signal and 8bits data from camera module. The camera module is controlled by I2C port from MSM6280.

No	Name	Port	Note
1	CAM_PWDN	i	Camera power down
2	CAM_MCLK	I	Master Clock(12M)
3	GND	GND	GND
4	CAM_PCLK	O	Clock for Camera Data Out(24M)
5	CAM_DATA(0)	O	Data
6	CAM_DATA(1)	O	Data
7	CAM_DATA(2)	O	Data
8	CAM_DATA(3)	O	Data
9	CAM_DATA(4)	O	Data
10	CAM_DATA(5)	O	Data
11	CAM_DATA(6)	O	Data
12	CAM_DATA(7)	O	Data
13	CAM_VSYNC	O	Vertical Synch
14	CAM_HSYNC	O	Horizontal Sync
15	GND	GND	GND
16	I2C_SCD	I	I2C Clock
17	I2C_SCL	I	I2C Clock
18	CAM_RESET_N	I	Camera reset signal
19	VREG_MSMP_2.6V	I	Camera I/O Power
20	VREG_CAM_2.8V	I	Camera I/O Power

Table. Interface between Camera Module and LCD FPCB (in camera module)

3.14.6 Folder ON/OFF Operation

There is a magnet to detect the Folder status, opened or closed.

If a magnet is close to the hall-effect switch, the voltage at pin OUT of U600 goes to 0V. Otherwise, 2.6V. This folder signal is delivered to MSM6280 GPIO92.

FOLDER_DETECT

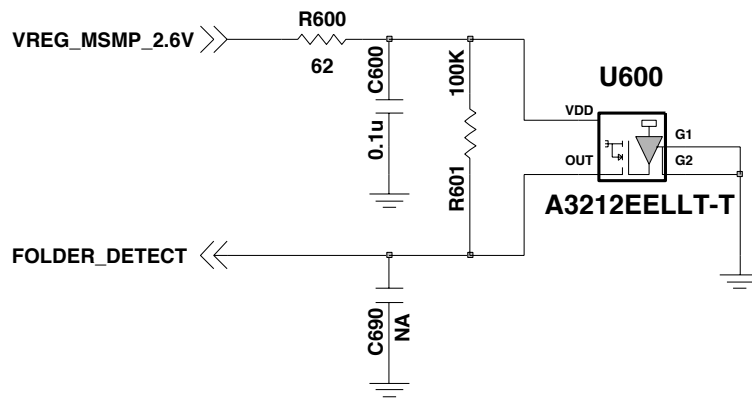


Figure. Schematic of Folder ON/OFF detection circuit

3. TECHNICAL BRIEF

3.14.7 Keypad Light

There are 16 White LEDs in Main board backlight circuit, which are driven by KPD_DRV_N line from PM6650.

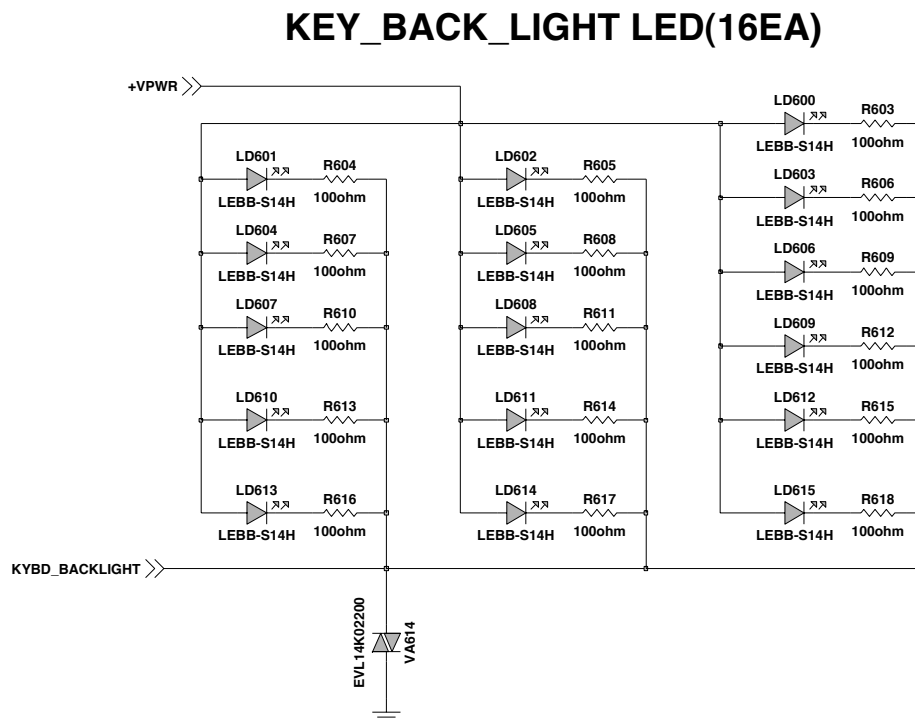


Figure. Keypad Backlight Circuit

3.14.8 LCD Module (NM200CM1A : Neodis)

- The NM200CM1A model is a Color TFT Main and MSTN Sub LCD supplied by Neodis. This main Module has a 2.0 inch diagonally measured active display area with 176(RGB)X220 resolution and sub Module has a 1.17 inch diagonally measured active display area with 96(BW)X64 resolution. In case of Main LCD, each pixel is divided into Red, Green and Blue sub-pixels and dots which are arranged in vertical stripes.

• Features

- Display mode(Main LCD) : Normally White, Transmissive TN mode 65K colors
- Display mode(Sub LCD) : Normally Black, Transmissive MSTN mode
- LCD Driver IC: S1D19501(Main LCD,EPSON), S6B0724(Sub LCD, SAMSUNG)
- Driving Method : A-Si TFT Active Matrix
- 16 bit CPU interface Parallel

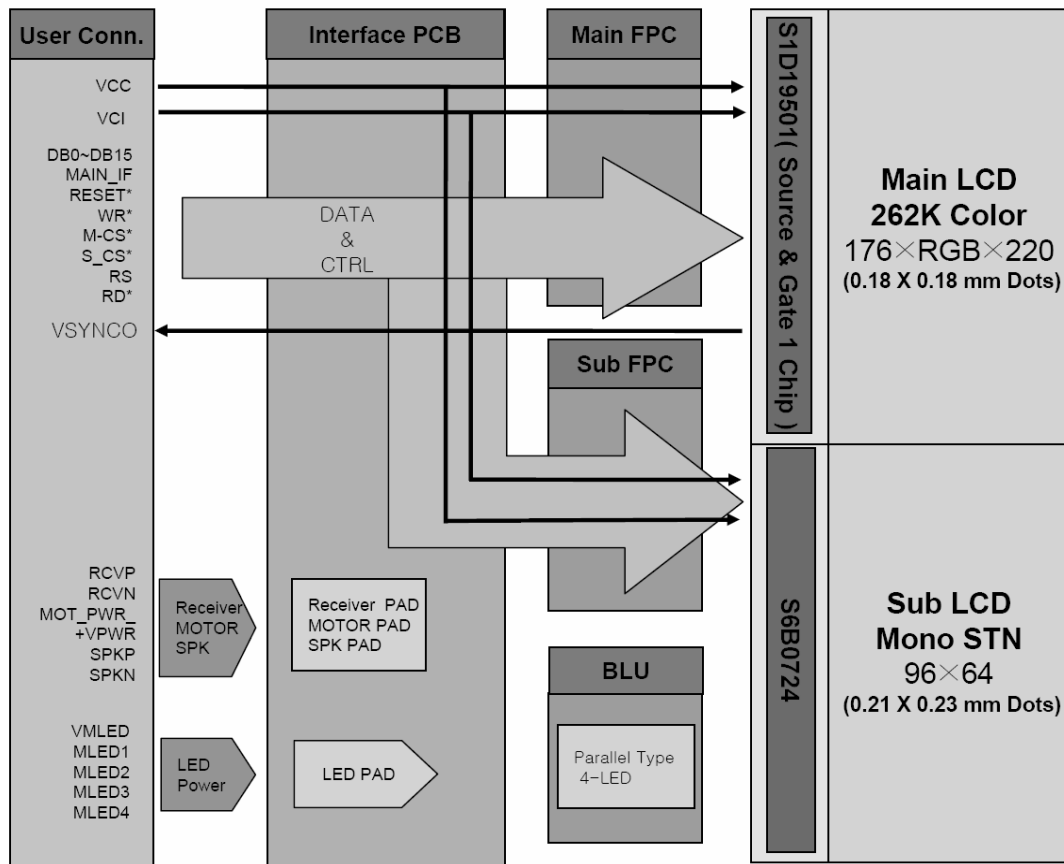


Figure. LCD Module Block Diagram

LCD module is connected to LCD FPCB with 54-pin B TO B connector (AXT454164 / Matsushita)
The LCD module is controlled by 16-bit EBI2 in MSM6280.



3.14.9.1 Audio Signal Processing & Interface

Audio signal processing is divided uplink path and downlink path. The uplink path amplifies the audio signal from MIC and converts this analog signal to digital signal and then transmits it to DBB Chip (MSM6280).

This transmitted signal is reformed to fit in GSM & WCDMA frame format and delivered to RF Chipset. The downlink path amplifies the signal from DBB chip (MSM6280) and outputs it to receiver (or speaker). The receive path can be directed to either one of two earphone amplifiers or the auxiliary output. The outputs earphone1 (EAR1OP, EAR1ON) and auxiliary out (AUXOP, AUXON) are differential outputs. Earphone2 (EAR2/EAR3) is a single-ended output stage designed to drive a headset speaker.

The microphone interface consists of two differential microphone inputs, one differential auxiliary input and a two-stage audio amplifier.

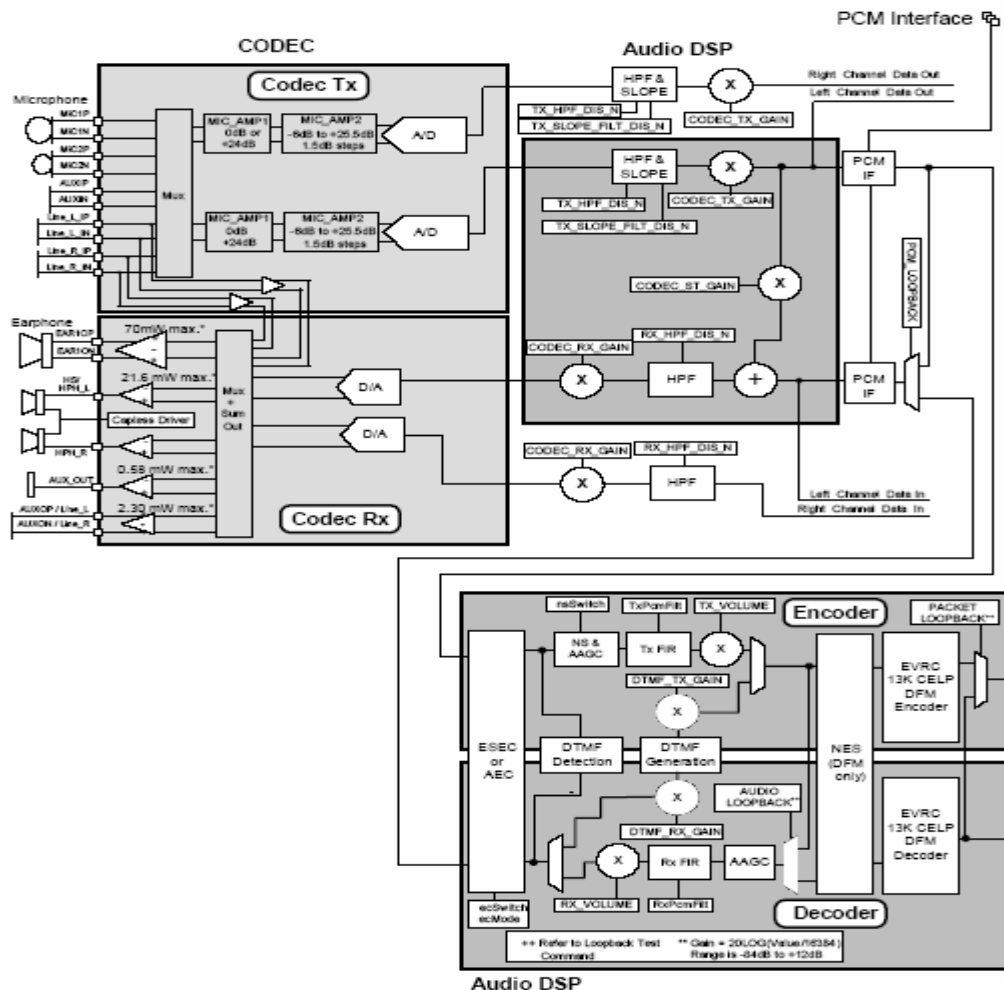


Figure. Audio Interface Detailed Diagram(MSM6280)

3. TECHNICAL BRIEF

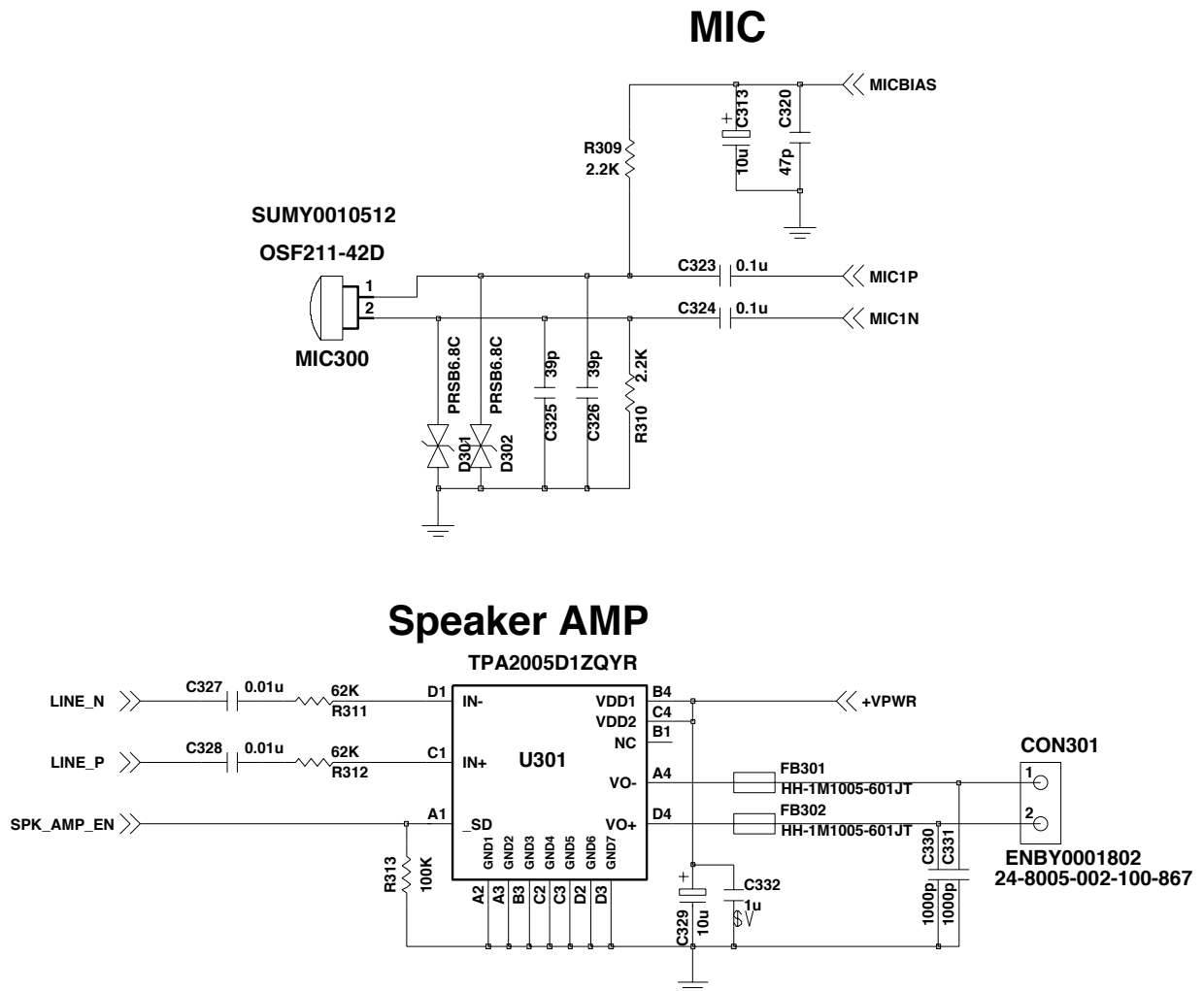


Figure . Audio part schematics

3. TECHNICAL BRIEF

3.14.9.2 Audio Mode

There are three audio modes (Voice call, speaker phone, MIDI/MP3).

MODE	Device	Description
Voice Call	Receiver Mode	Receiver Voice Call
	Loud Mode	Speaker Phone
	Headset	Headset Voice Call
Speaker phone	Loud Mode	Speaker Phone
MIDI	Loud Mode	Speaker MIDI Bell
	Headset	Headset MIDI Bell
MP3	Loud Mode	Speaker MP3
	Headset	Headset MP3

Table. Audio Mode

Audio & Sound Main Component

There are 6 main components in CU405.

	Component	Design No.	Maker Part No.	Note
1	MSM6280	U201	MSM6280	Base-Band Modem
2	Audio amp	U301	TPA2005D1ZQYR	Class-D Audio Amp
3	Loud Speaker		K20G01WCP	8 ohm Speaker
4	Receiver		K134HP	32 ohm receiver
5	MIC	MIC300	OSF211-42D	-42 dB microphone
6	Ear jack	CON300	KJA-PH-3-0059	Ear jack

Table. Audio main component list

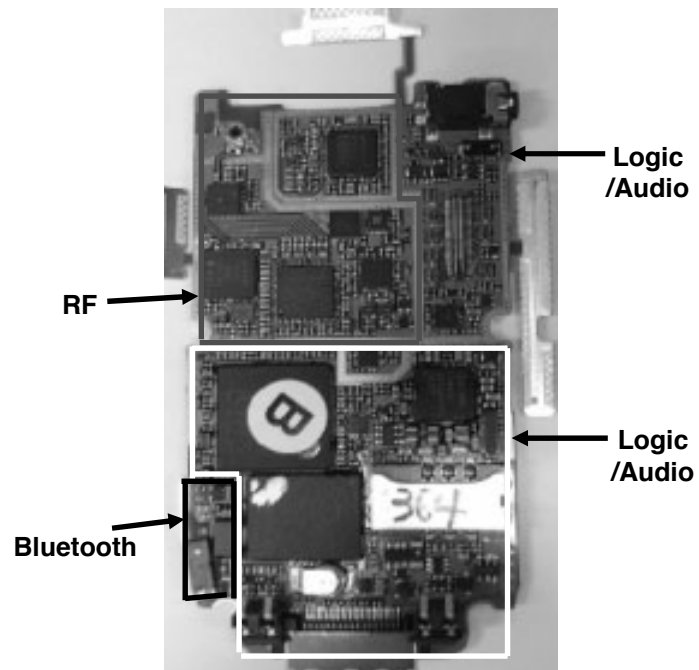
3.15 Main Features

1. LG-CU405 Main features

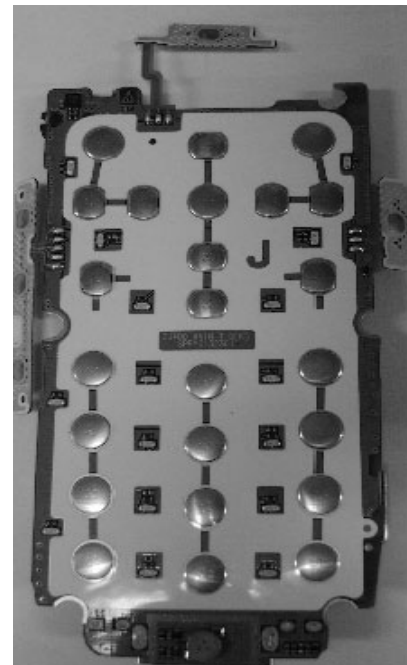
- Dual Clamshell Type
- WCDMA(850, 1900) + EDGE Quad(Class10)
- Color LCD(Main:65K TFT, 2.0', Sub : MSTN)
- VGA(0.3M) Camera
- 20 phi speaker
- Stereo Headset
- Speaker phone(in GSM and WCDMA)
- PTT with Voice Buffering (Kodiak v5.2)
- HAC (Hearing Aid Compatibility) Support
- 72 Poly Sound
- MP3/AAC decoder and play
- MPEG4 encoder/decoder and play/save
- JPEG en/decoder
- Supports Bluetooth, USB
- 1,100 mAh (Li-Ion)

3. TECHNICAL BRIEF

2. CU405 Main Component



Main board, Bottom

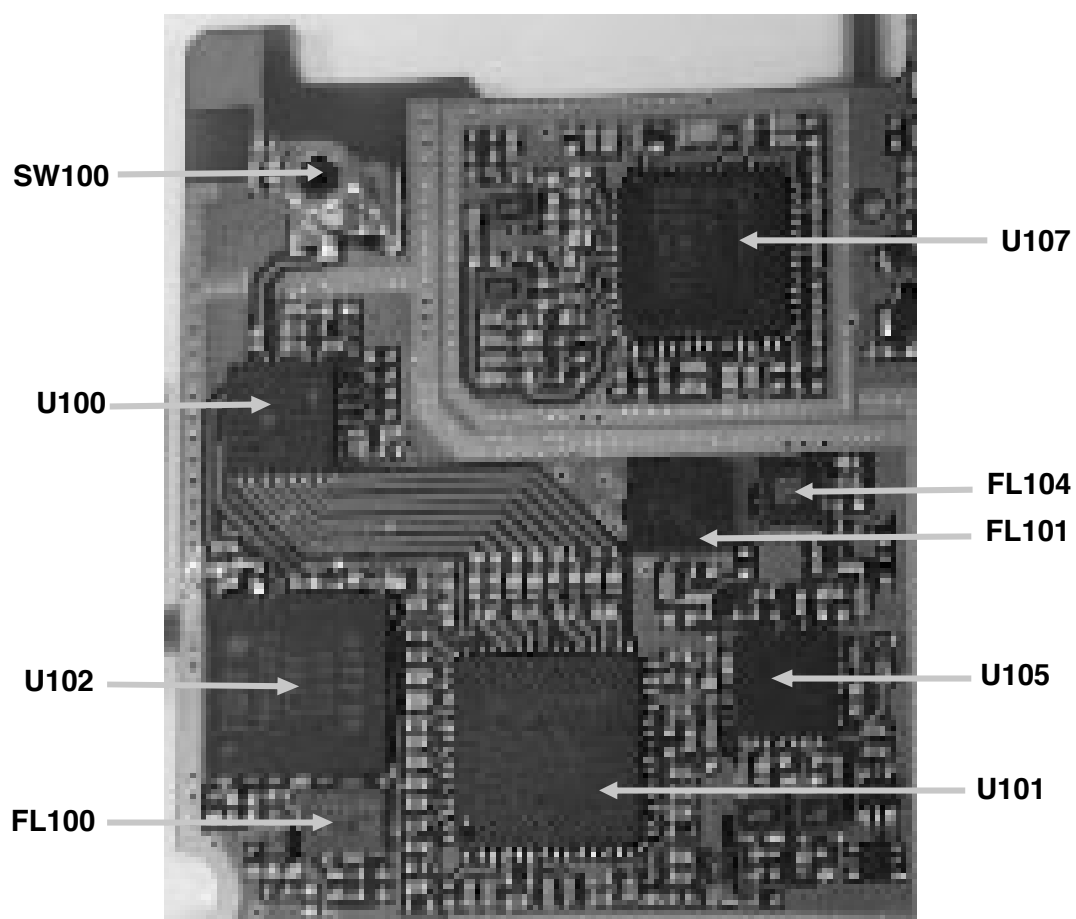


Main board, Top



LCD FPCB

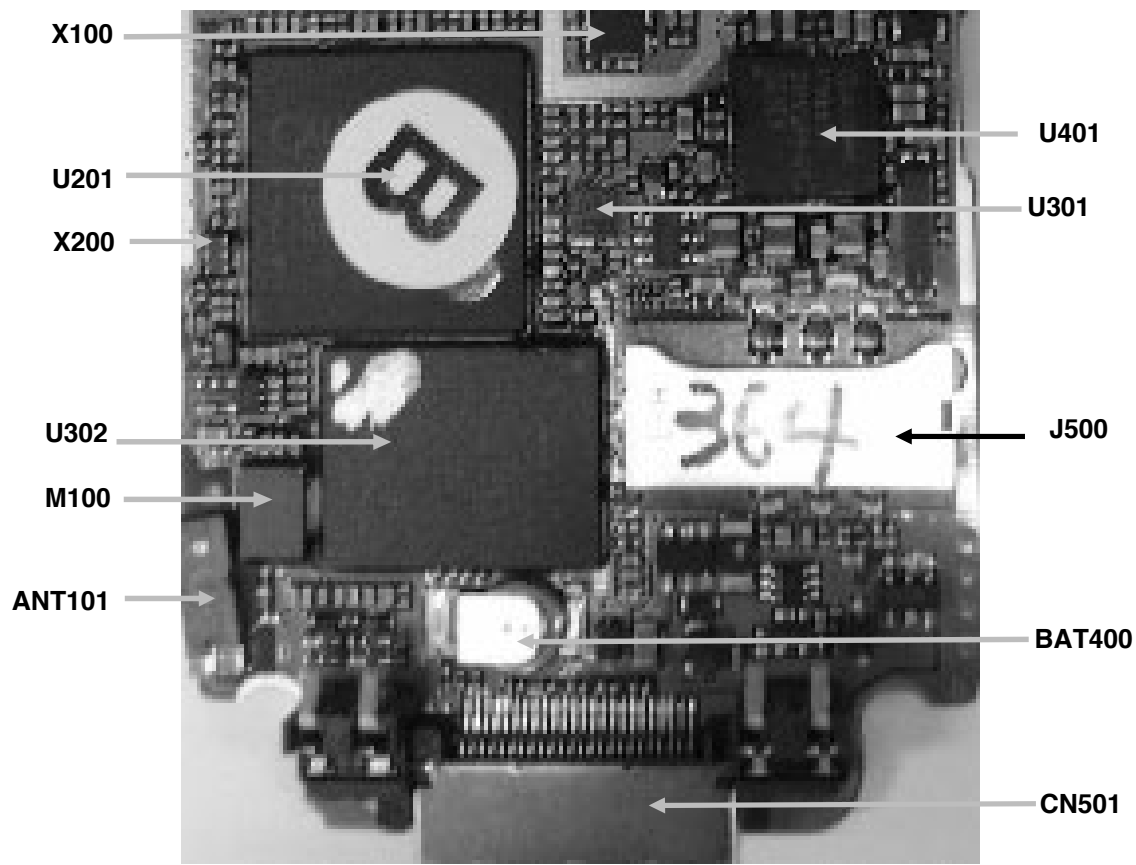
RF



Reference	Description	Reference	Description
SW100	Ant. Switch module	U107	RFR6275
U100	SP8T	FL104	W850 Duplex
U102	GSM PAM	FL101	W1900 Duplex
FL100	GSM SAW	U105	WCDMA PAM
		U101	RTR6275

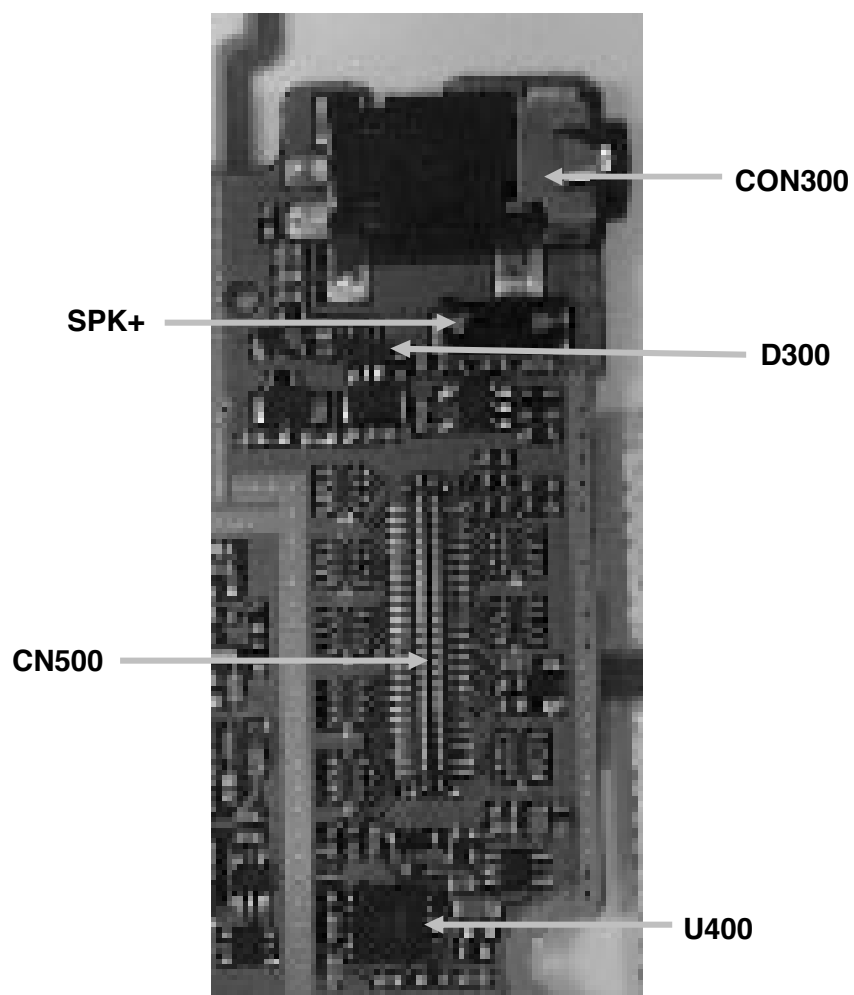
3. TECHNICAL BRIEF

Audio/logic



Reference	Description	Reference	Description
X100	TCXO	U401	PMIC
U201	MSM6280	U301	Speaker AMP
X200	OSC	J500	USIM connector
U302	Memory	BAT400	Back-up Battery
M100	BT module	CN501	IO connector
ANT101	BT ANT		

ETC

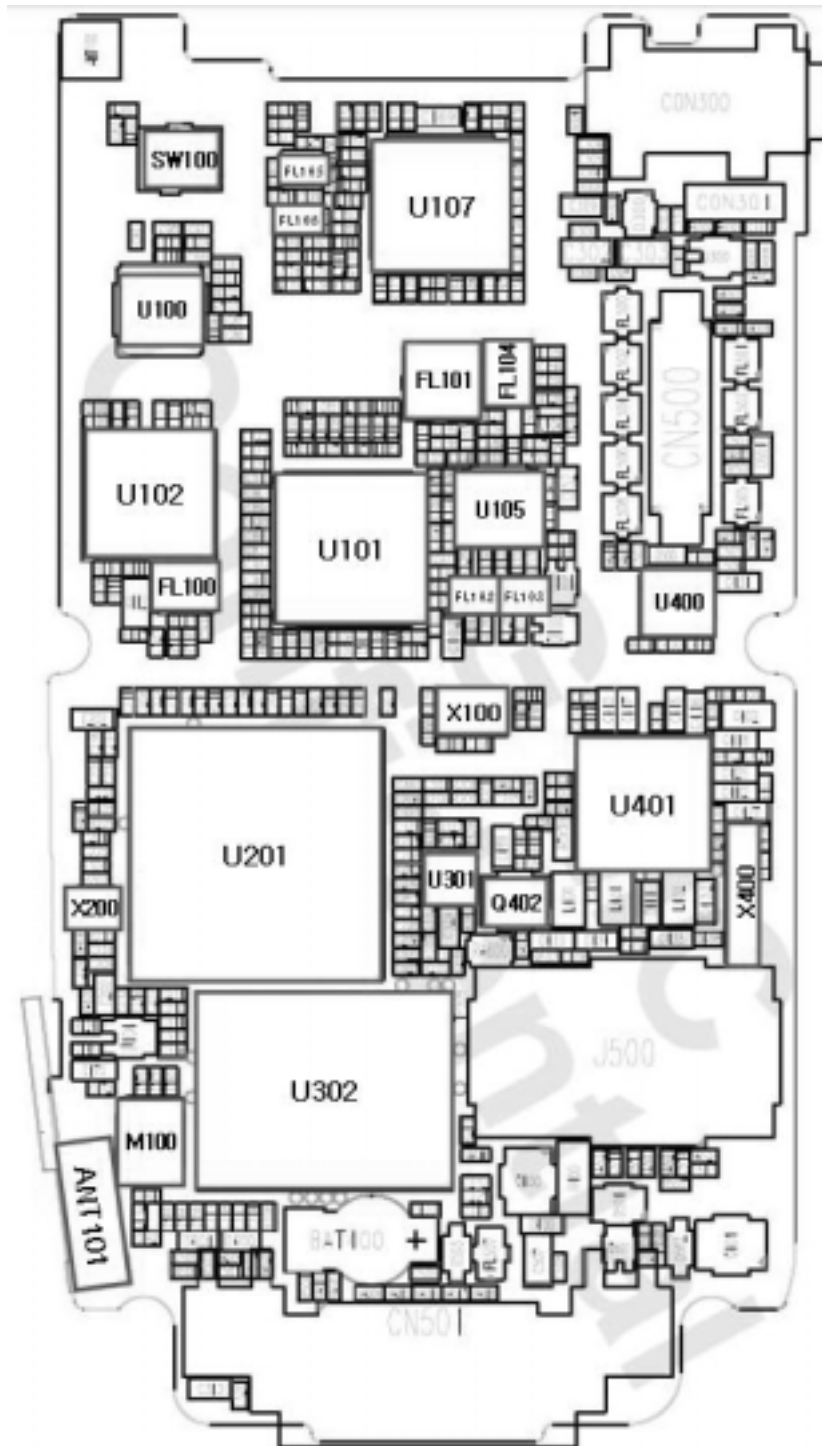


Reference	Description	Reference	Description
SPK+	Speaker Socket	CON300	Ear_jack connector
CN500	LCD connector	D300	TVS Diode
		U400	Charge pump

4. TROUBLE SHOOTING

4. TROUBLE SHOOTING

4.1 RF Component

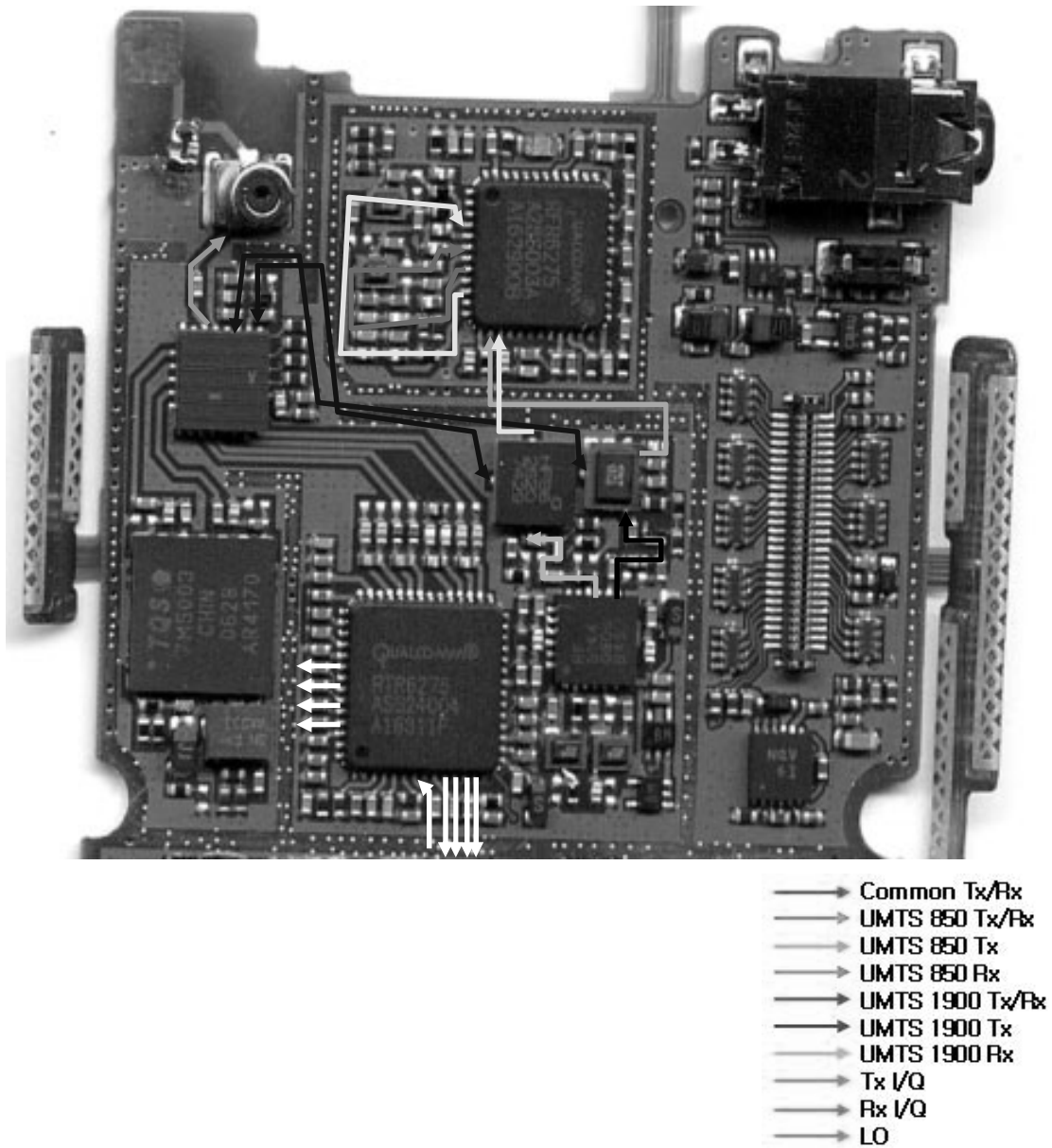


4. TROUBLE SHOOTING

Block Diagram Block	Ref. Name	Part Name	Function	Comment
Common	U201	MSM6280	Main Control	Main Chipset
	X400	MC-146_12.5pF	Sleep Clock	32.768 kHz
	X200	ICRT20S48M0X514CR	USB Clock	48MHz
	U401	PM6650-2M	Power Control	Power Supply
	U301	TPA2005D1ZQYR	Speaker AMP	AMP
	U100	LMSP4LMA-573TEMP	Switch	Band select
	U302	TY90009800COGG	Memory	512M/512M
	SW100	KMS-507	Test Connector	Calibration, etc
	X100	TG-5001LH-19.2MHz	VCTCXO	19.2MHz
Bluetooth	M100	RB04	Bluetooth RF Transceiver	Bluetooth TRX
	ANT101	10OL21C7AJ00001	Antenna	Bluetooth antenna
UMTS	U107	RFR6275	UMTS Receiver IC	RX
	U101	RTR6275	UMTS/GSM Transceiver	TRX
	FL106	B7847	UMTS1900 RX SAW filter	RX
	FL105	B7838	UMTS850 RX SAW filter	RX
	FL104	LM56C	UMTS 850 Duplexer	TRX
	FL101	ACMD-7402	UMTS 1900 Duplexer	TRX
	U105	RF5144	UMTS dual PA	TX
	X100	MQW541A1G44	UMTS VCO	RX
	Q402	SI3493DV-E3	DC/DC Switching MOSFET	FET
	FL102	B9014	UMTS 1900 TX SAW Filter	TX
	FL108	B9003	UMTS 850 TX SAW Filter	TX
GSM	U102	TQM7M5003	TX Dual PAM	TX
	FL100	LMSM32AA-533	GSM850/900 TX SAW Filter	TX

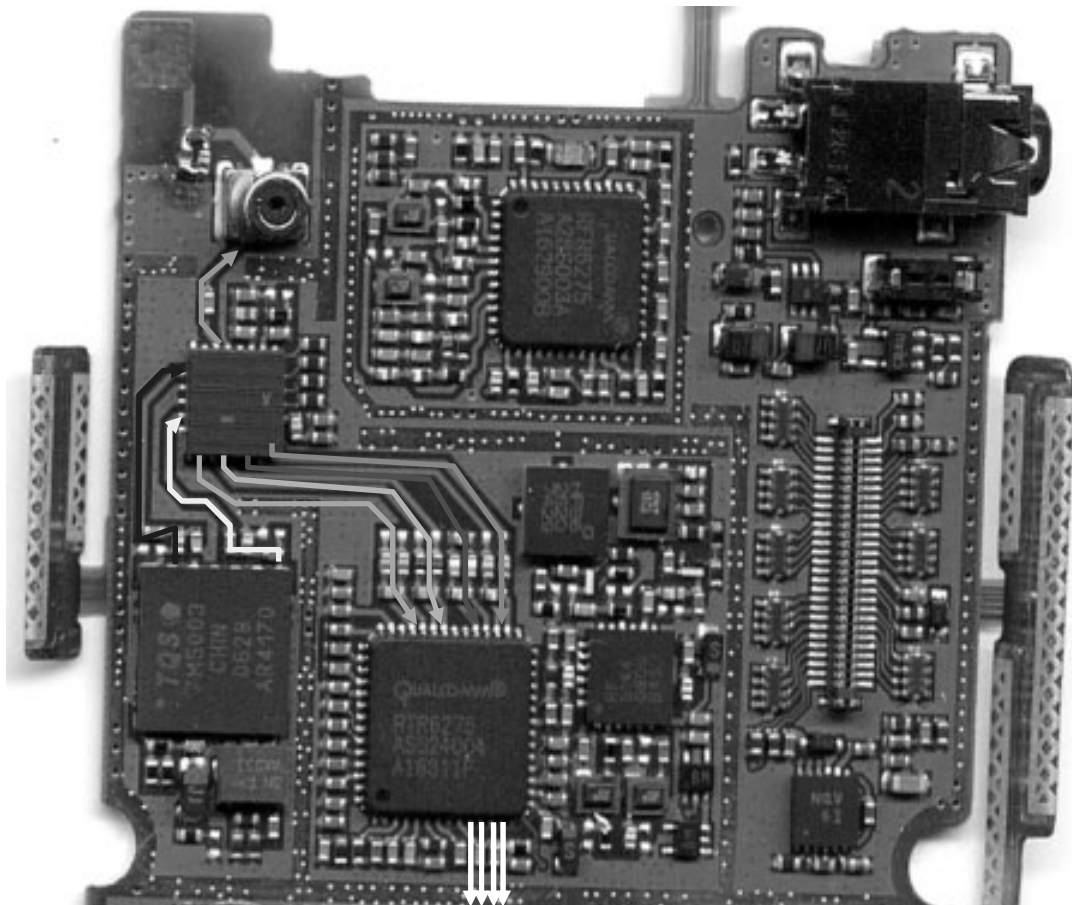
4. TROUBLE SHOOTING

4.1.1 SIGNAL PATH_UMTS RF



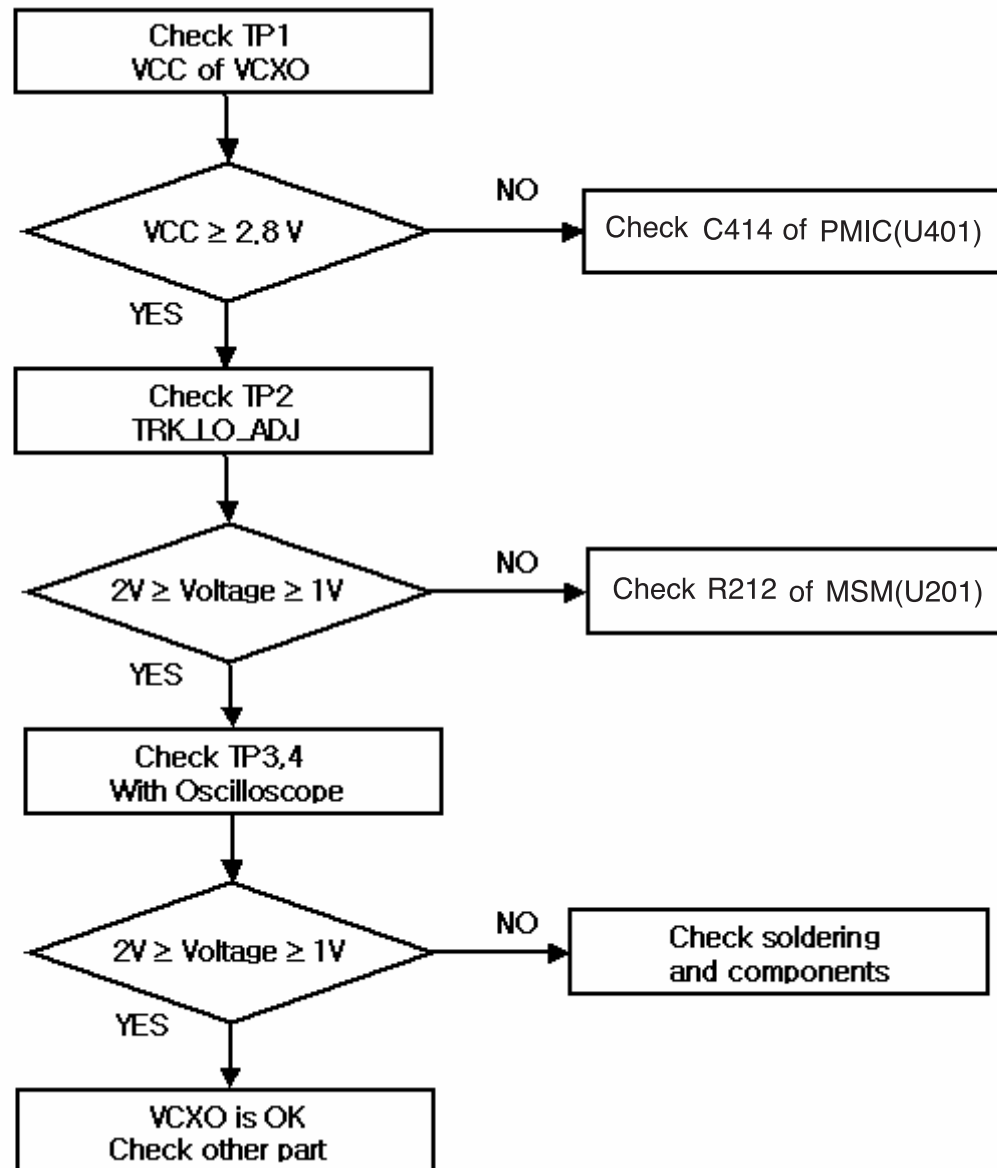
4. TROUBLE SHOOTING

4.1.2 SIGNAL PATH_GSM RF



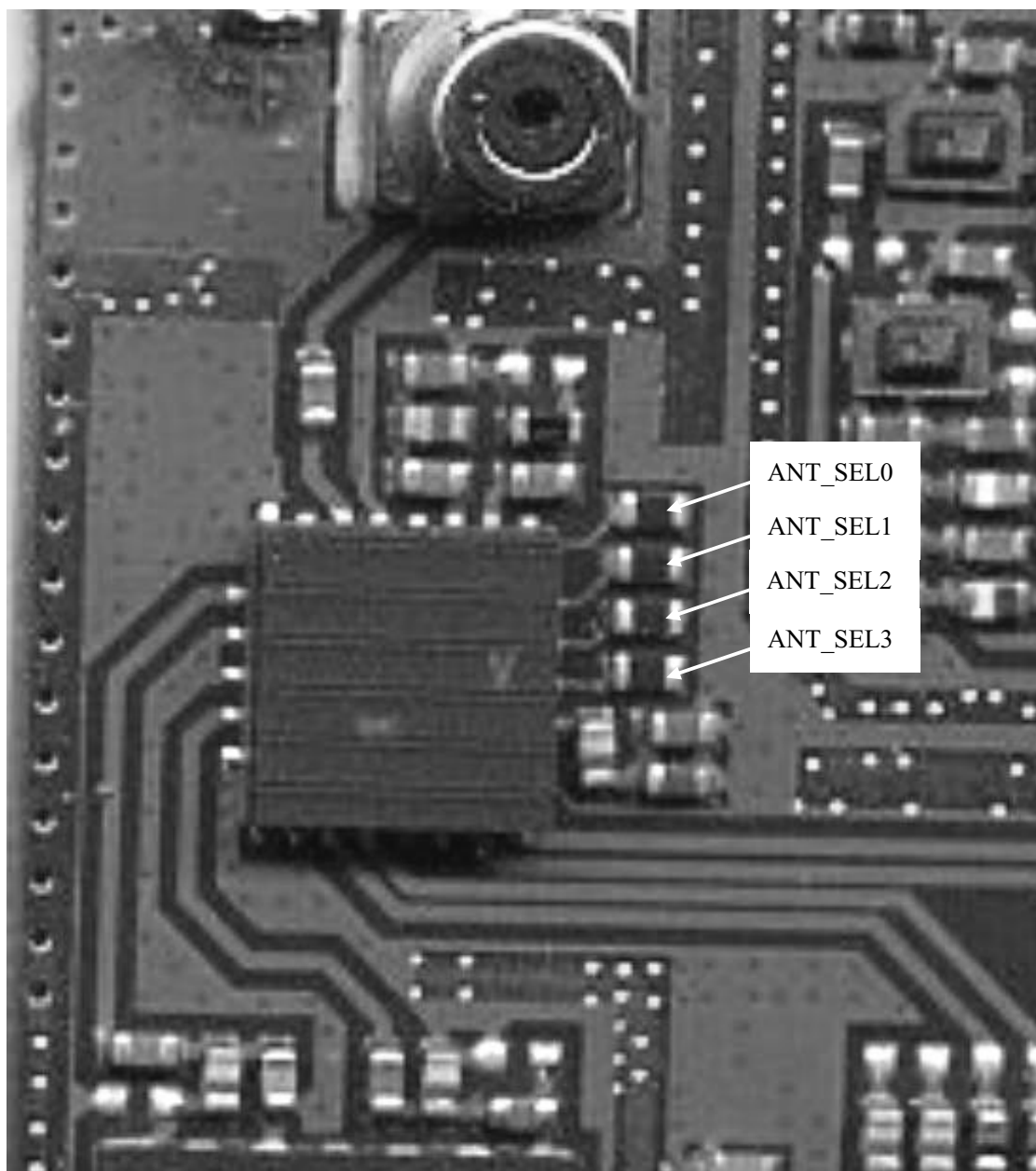
- Common Tx/Rx
- DCS Rx
- PCS Rx
- GSM850 Rx
- GSM900 Rx
- DCS/PCS Tx
- GSM850/900 Tx
- Tx I/Q
- Rx I/Q

4. TROUBLE SHOOTING



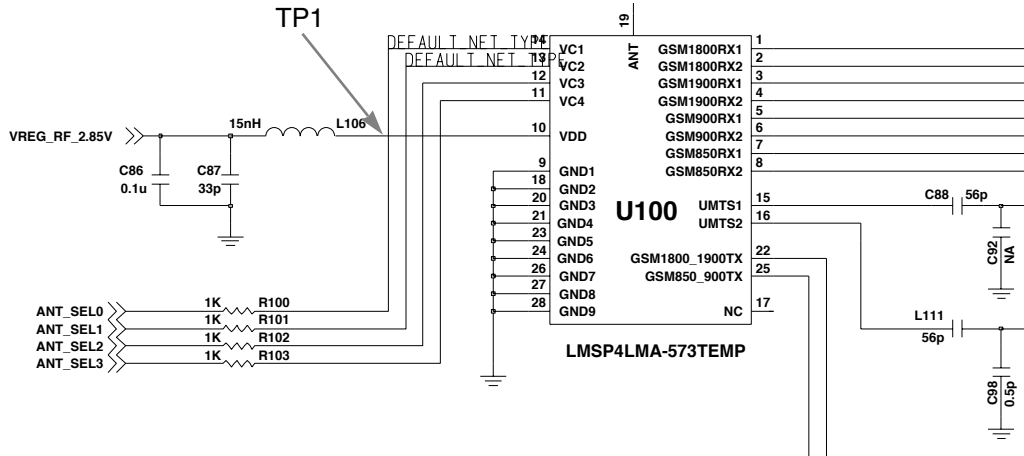
4. TROUBLE SHOOTING

4.3 Checking Ant. SW Module Block



Antenna Switch Block(Bottom)

4. TROUBLE SHOOTING



Schematic of the Antenna Switch Block

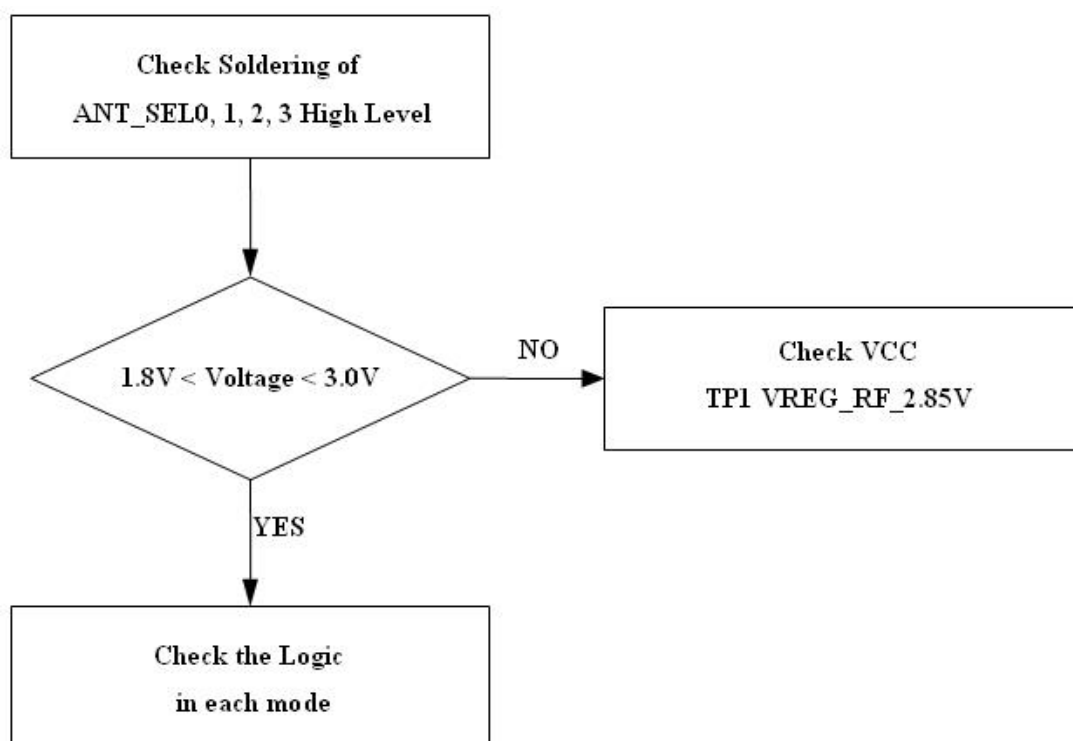
CONTROL LOGIC

Mode	Vc1	Vc2	Vc3	Vc4	Vdd
GSM850/900 Tx	1.8-3.0V	1.8-3.0V	0-0.2V	0-0.2V	2.4-3.0V
GSM1800/GSM1900 Tx	1.8-3.0V	0-0.2V	0-0.2V	0-0.2V	2.4-3.0V
GSM850 Rx	0-0.2V	0-0.2V	0-0.2V	0-0.2V	2.4-3.0V
GSM900 Rx	0-0.2V	0-0.2V	1.8-3.0V	0-0.2V	2.4-3.0V
GSM1800 Rx	0-0.2V	1.8-3.0V	1.8-3.0V	0-0.2V	2.4-3.0V
GSM1900 Rx	0-0.2V	1.8-3.0V	0-0.2V	0-0.2V	2.4-3.0V
UMTS1	1.8-3.0V	0-0.2V	1.8-3.0V	0-0.2V	2.4-3.0V
UMTS2	1.8-3.0V	0-0.2V	1.8-3.0V	1.8-3.0V	2.4-3.0V
Idle	0-0.2V	0-0.2V	0-0.2V	0-0.2V	0-0.2V

Logic Table of the Antenna Switch

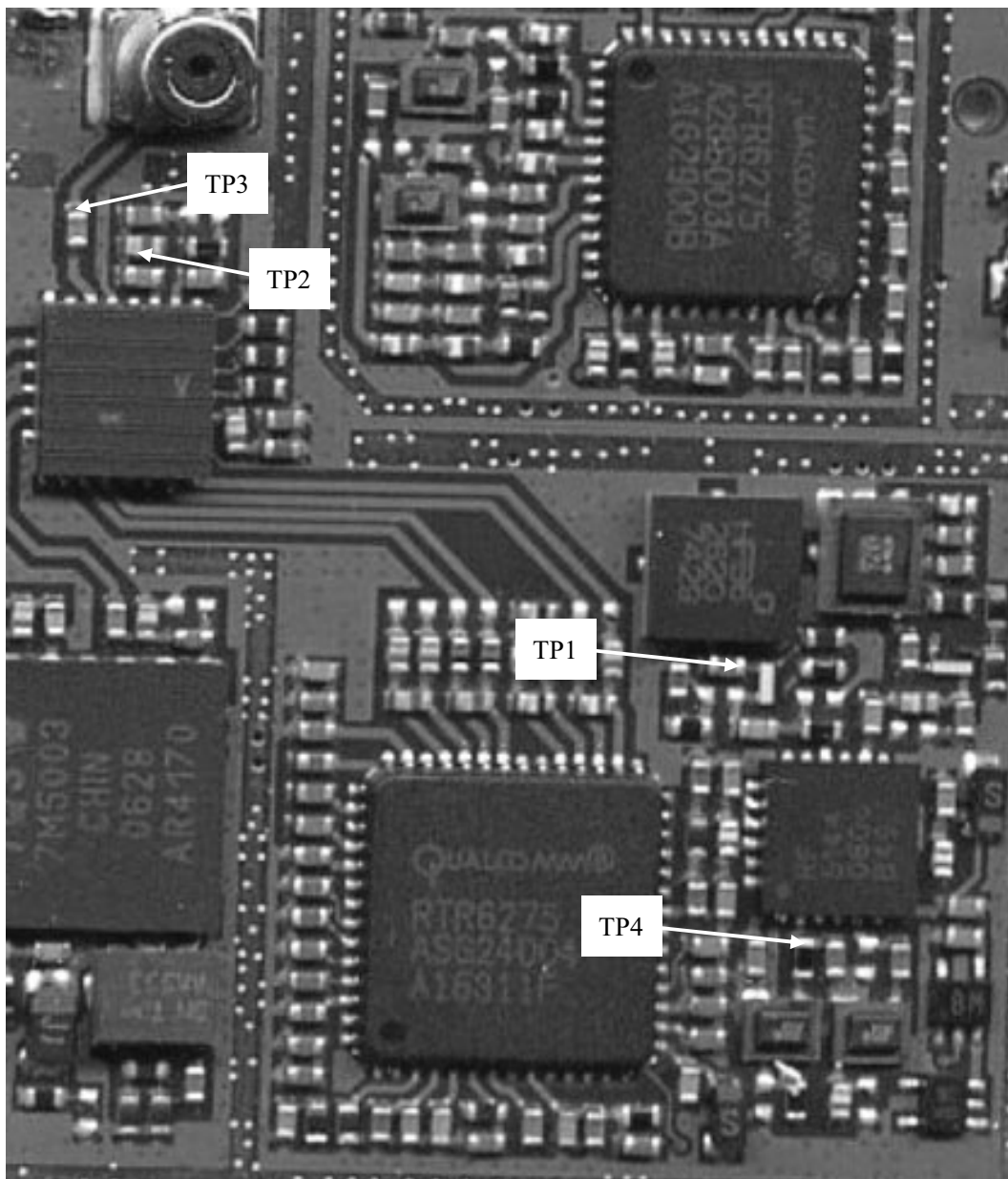
4. TROUBLE SHOOTING

Checking Switch Block power source



4.4 Checking UMTS Block

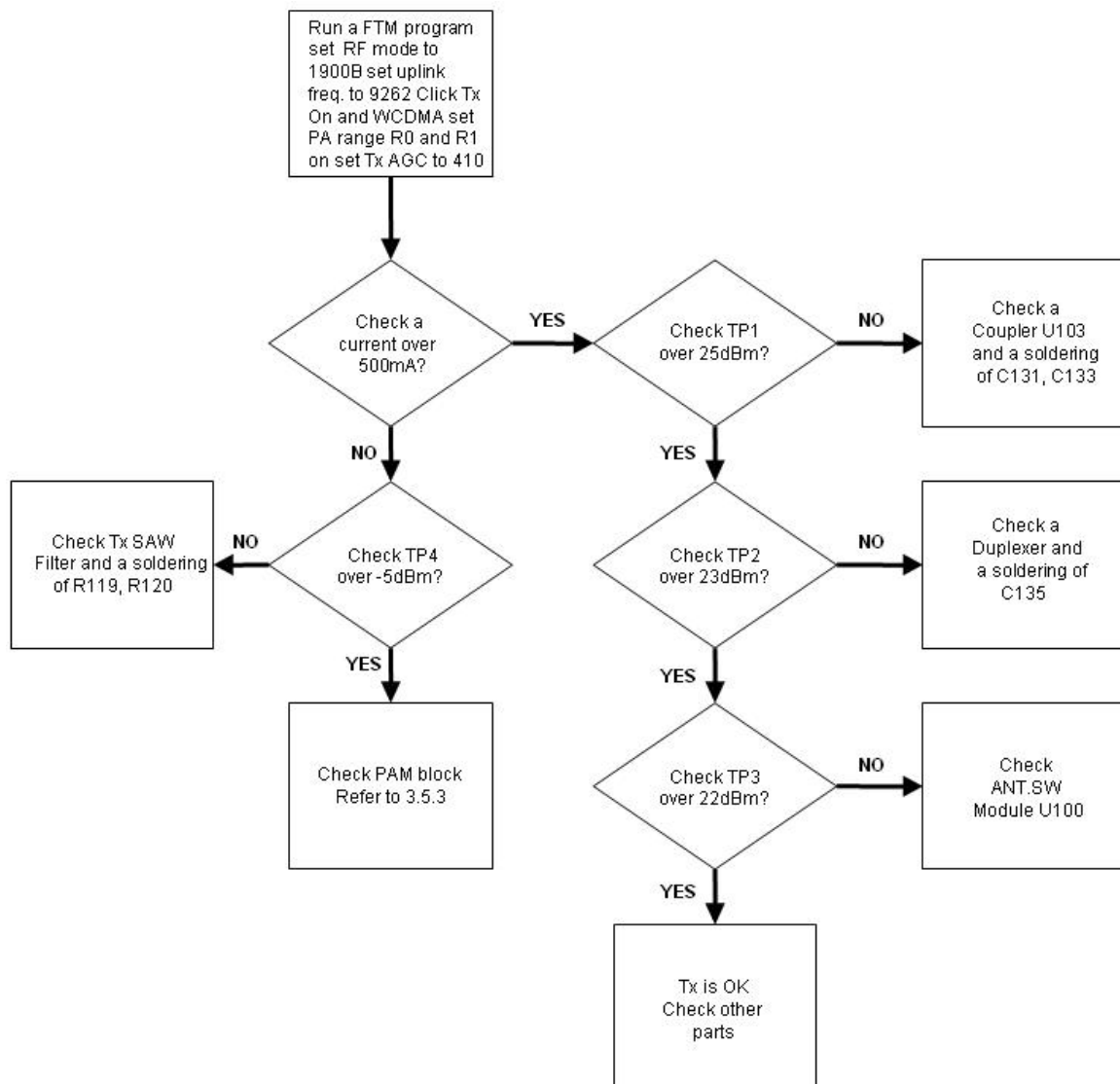
4.4.1 Checking TX POWER of UMTS1900MHz



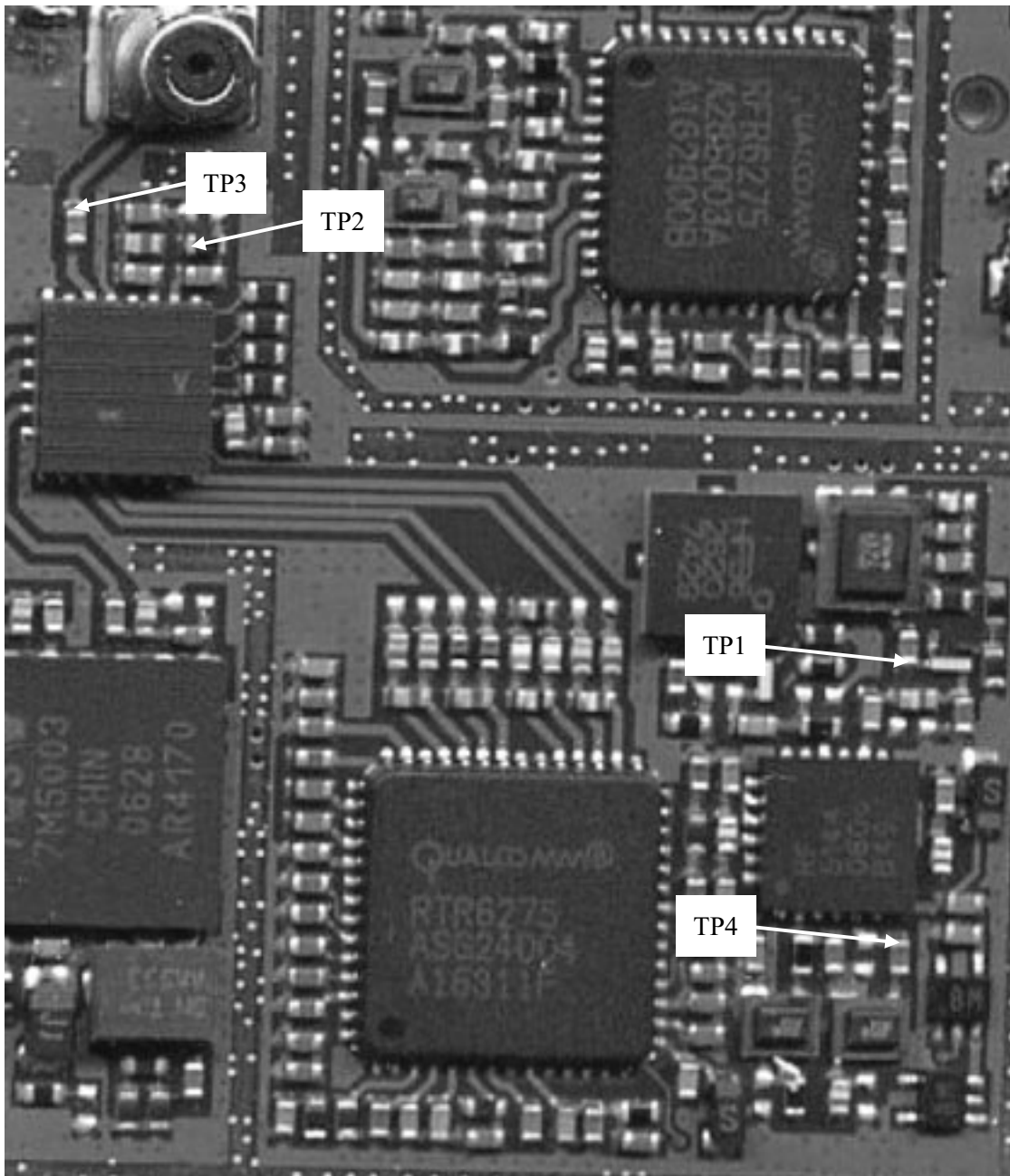
Test Point (RF TX POWER of UMTS1900)

4. TROUBLE SHOOTING

For testing, Max power of UMTS1900MHz is needed.



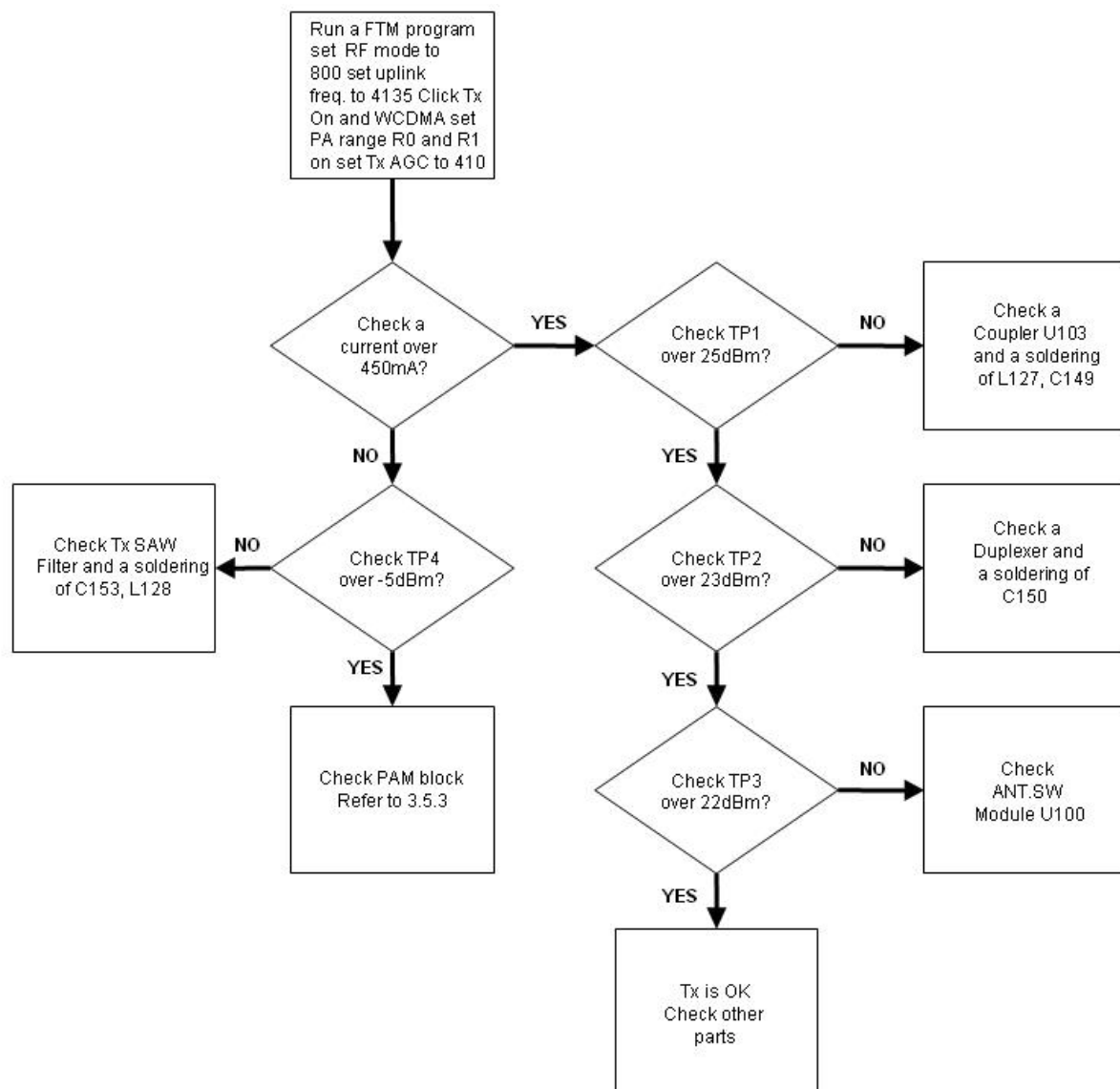
4.4.2 Checking TX POWER of UMTS 850MHz



Test Point of RF TX POWER of UMTS 850

4. TROUBLE SHOOTING

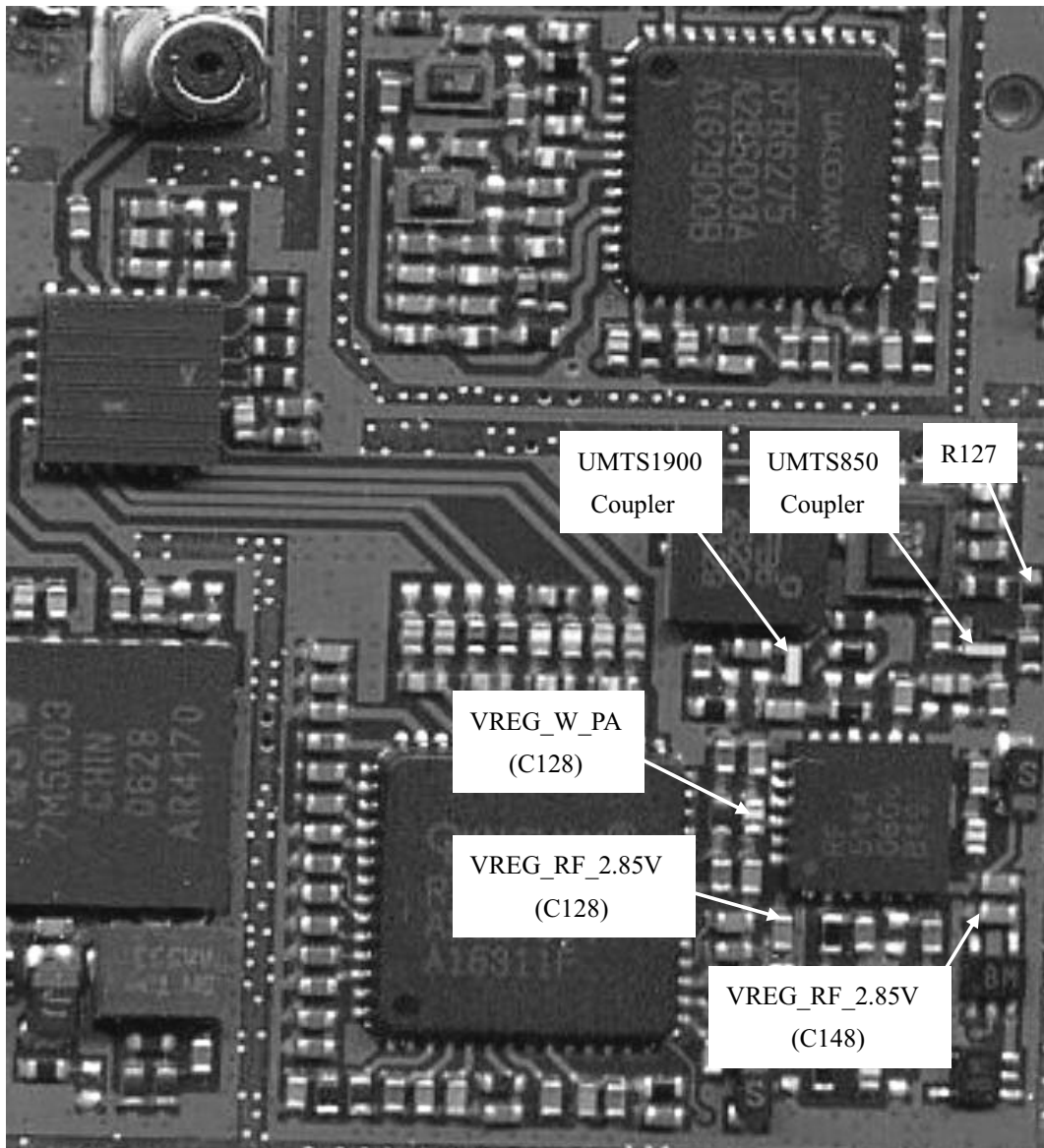
For testing, Max power of UMT850MHz is needed.

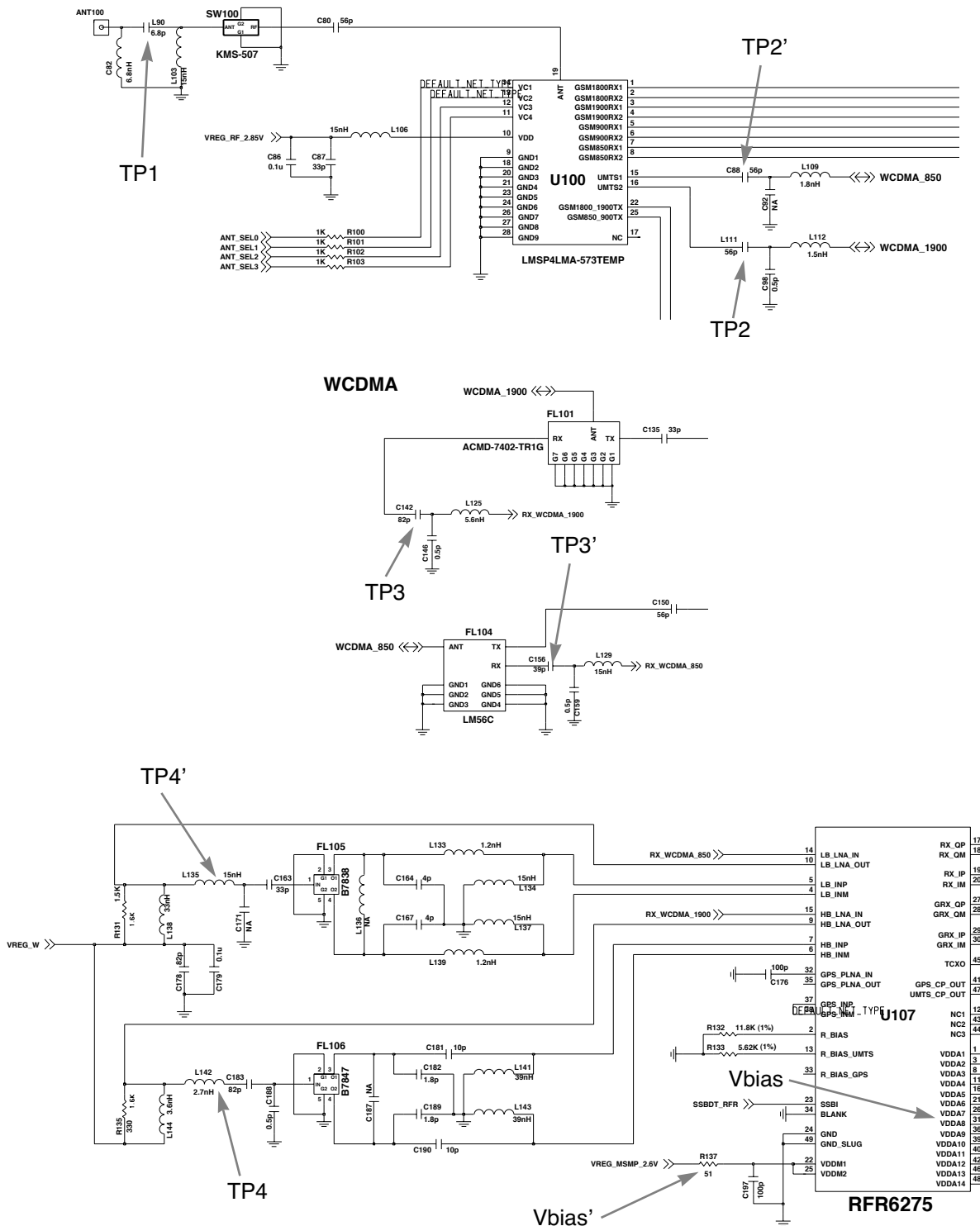


4.4.3 Checking UMTS PAM Control Block

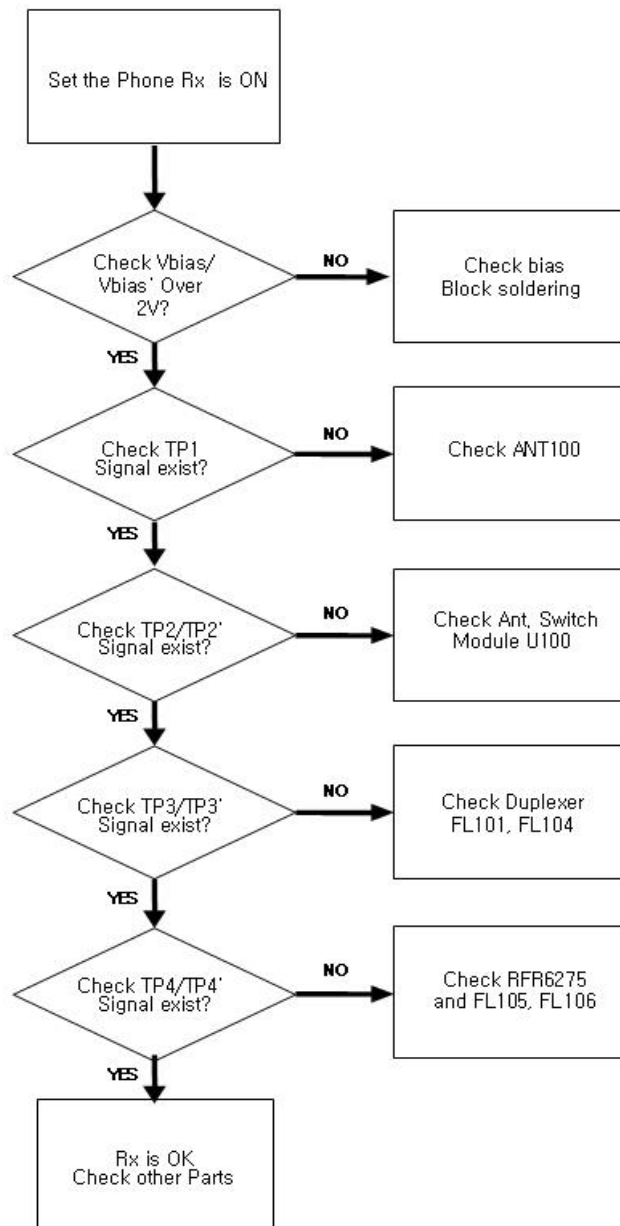
• PAM control signal

1. PWR_DET : UMTS Tx Power Detected value (Check R127)
2. TX_AGC_ADJ : UMTS RTR6275 Tx Amp Gain Control
3. VREG_RF_2.85V : UMTS PAM enable (about 2.85V)
4. VREG_W_PA : UMTS PAM Main Voltage ($3V < VREG_W_PA < 4.2V$)





4. TROUBLE SHOOTING

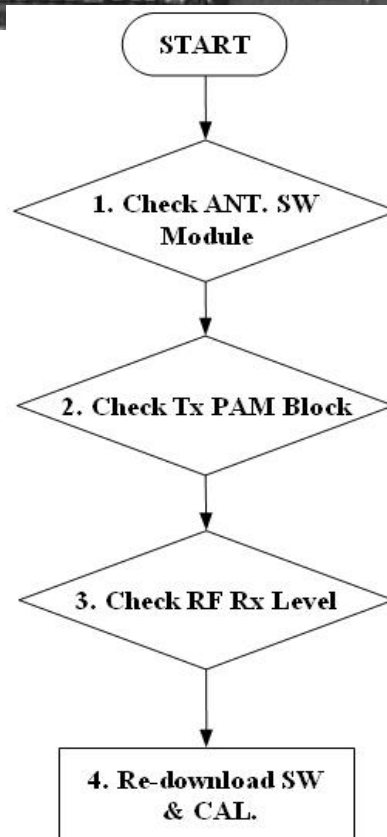
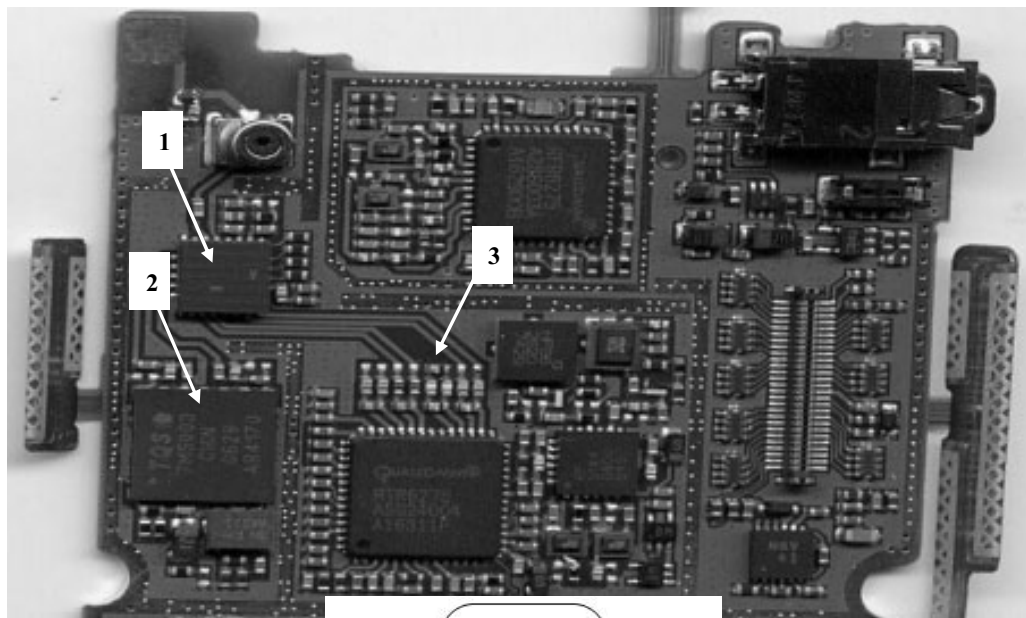


★ TP*: UMTS 850 RX PATH

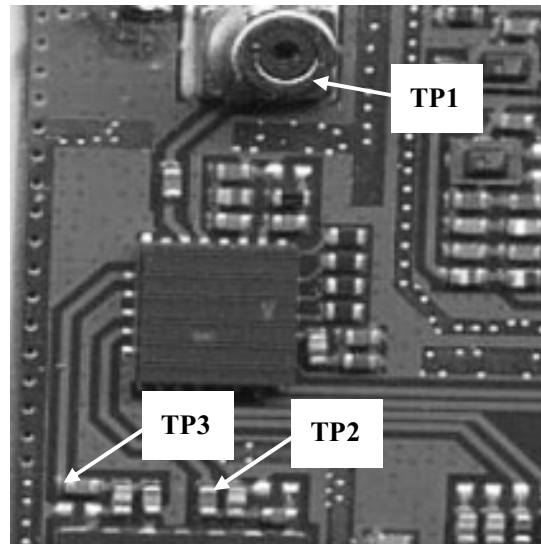
TP*: UMTS 1900 RX PATH

4. TROUBLE SHOOTING

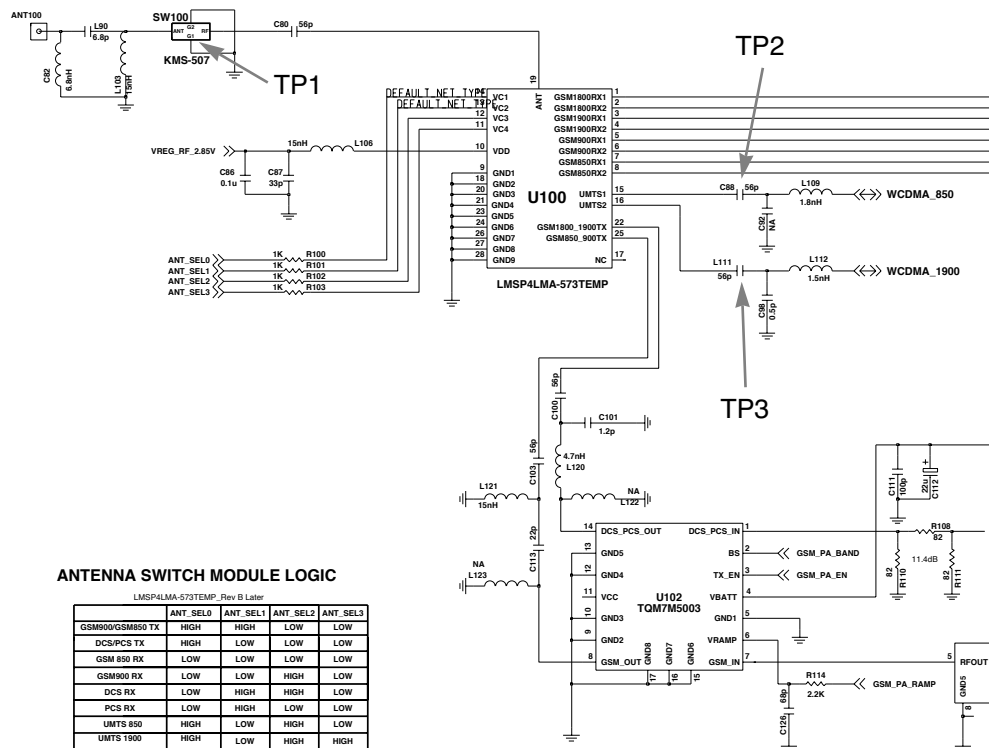
4.5 Checking GSM Block



Refer to chapter 3.3

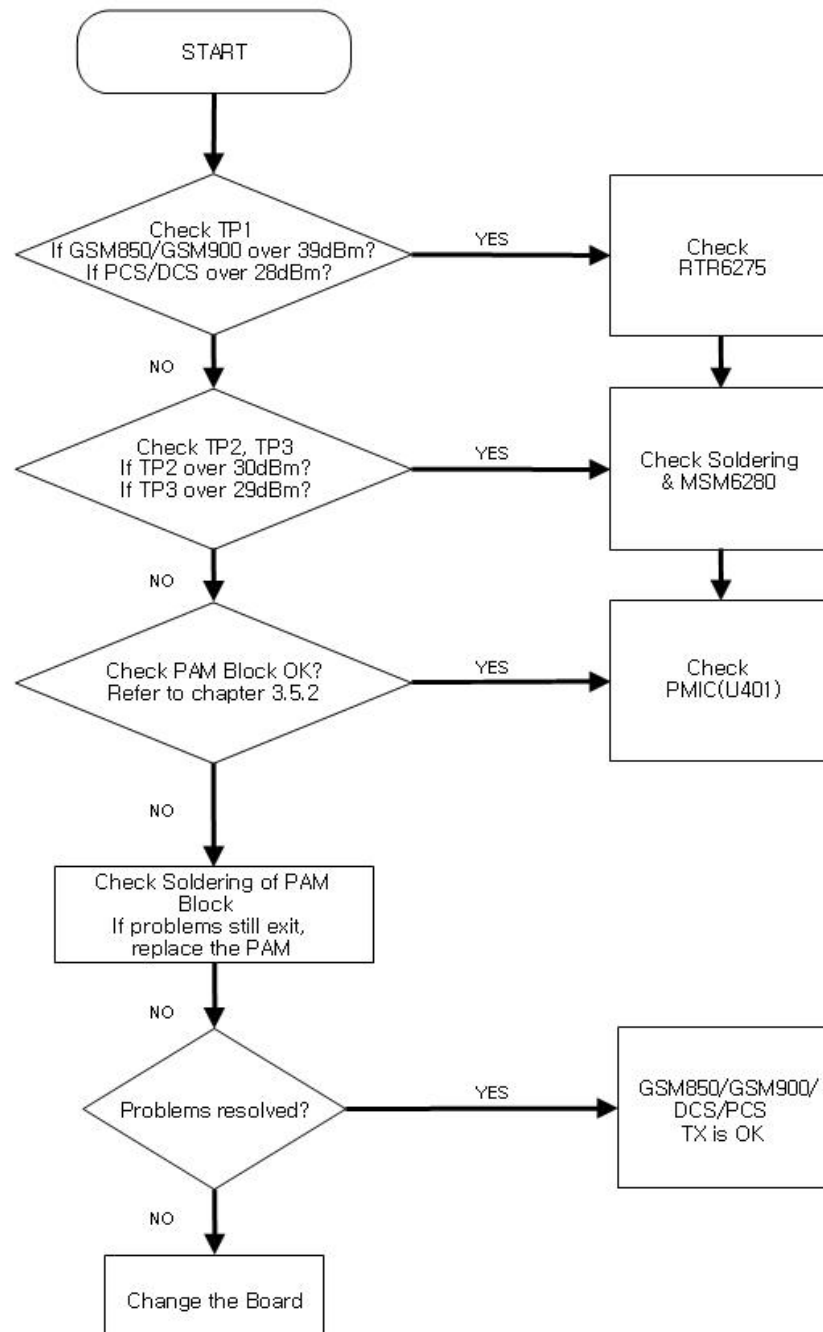


Schematic of RF Tx level



4. TROUBLE SHOOTING

Checking RF Tx level



4.5.2 Checking PAM Block

TP1. GSM_PA_RAMP : Power Amp Gain Control. typically, $0.2V < V_{ramp} < 1.6V$

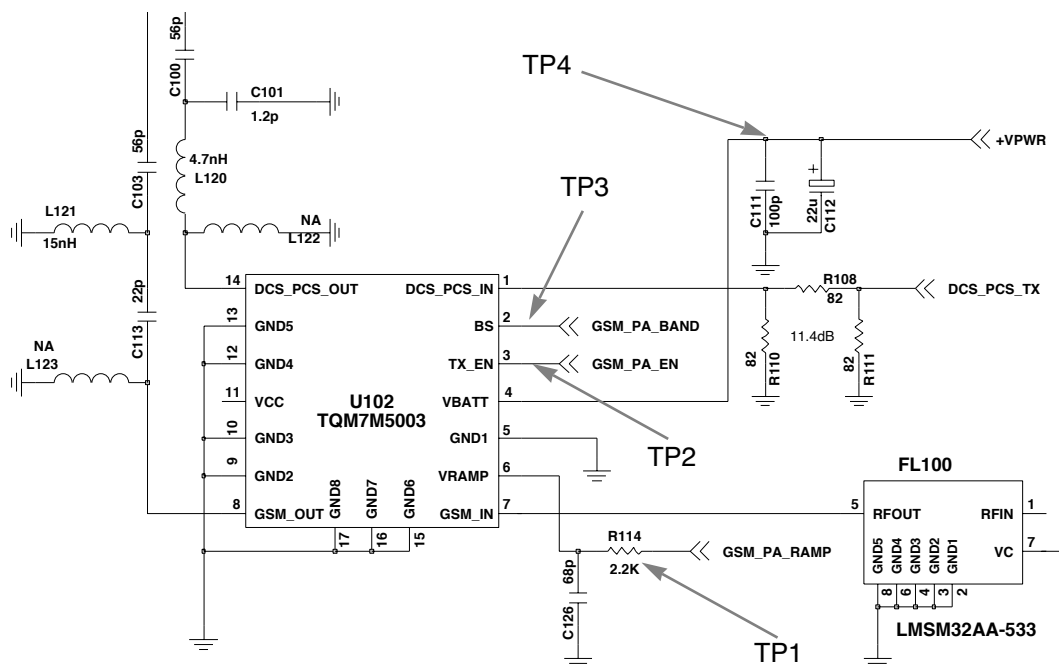
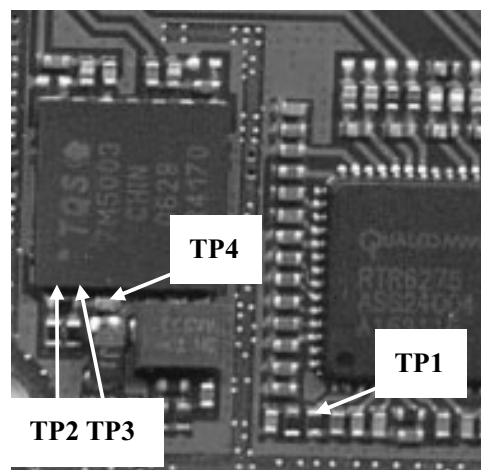
TP2. GSM_PA_EN : Power Amp Enable

(Power ON : higher than 1.25V , Power OFF : lower than 0.4V)

TP3. GSM_PA_BAND : Power Amp Band Selection Control

(GSM Mode : $-0.2V < V_{BS} < 0.4V$, DCS/PCS Mode : $1.25V < V_{BS} < 3.0V$)

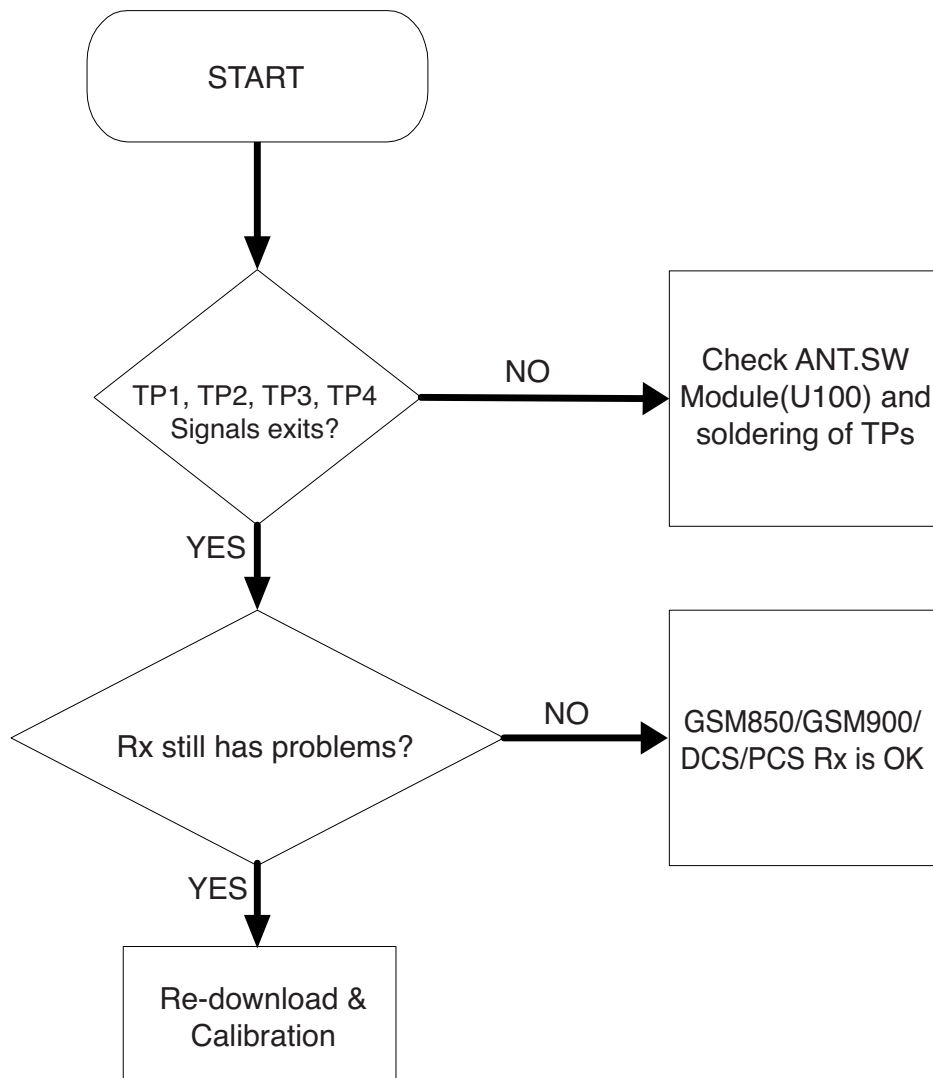
TP4. +VPWR : PAM Supply Voltage Vcc higher than 3.0V



Schematic of GSM PAM Block

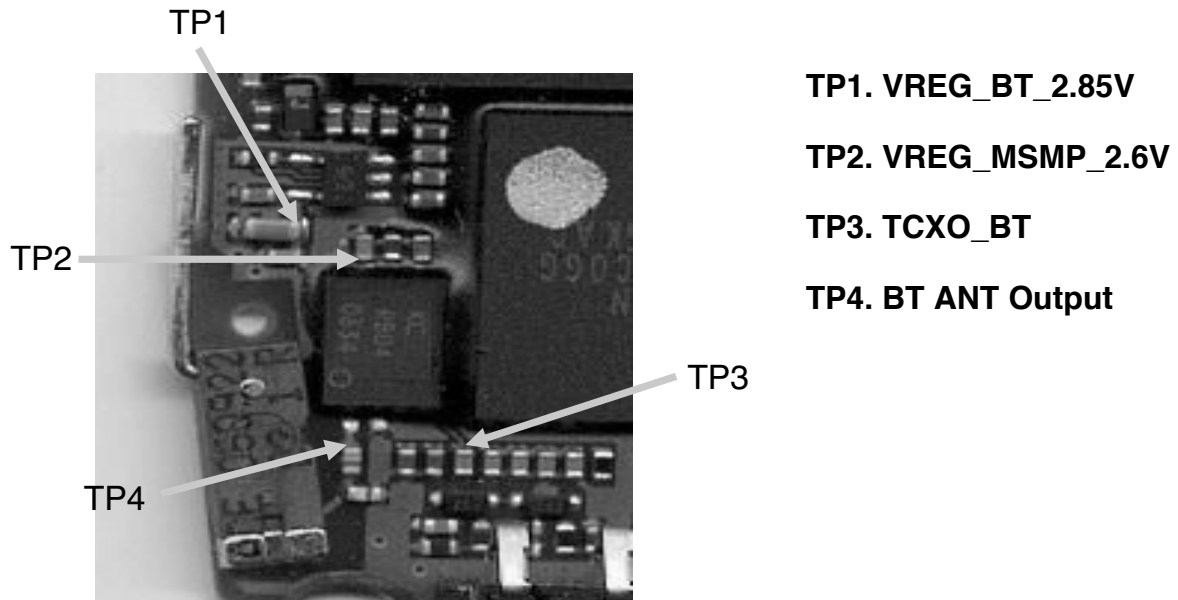
TP4. DCS Rx Input

4. TROUBLE SHOOTING

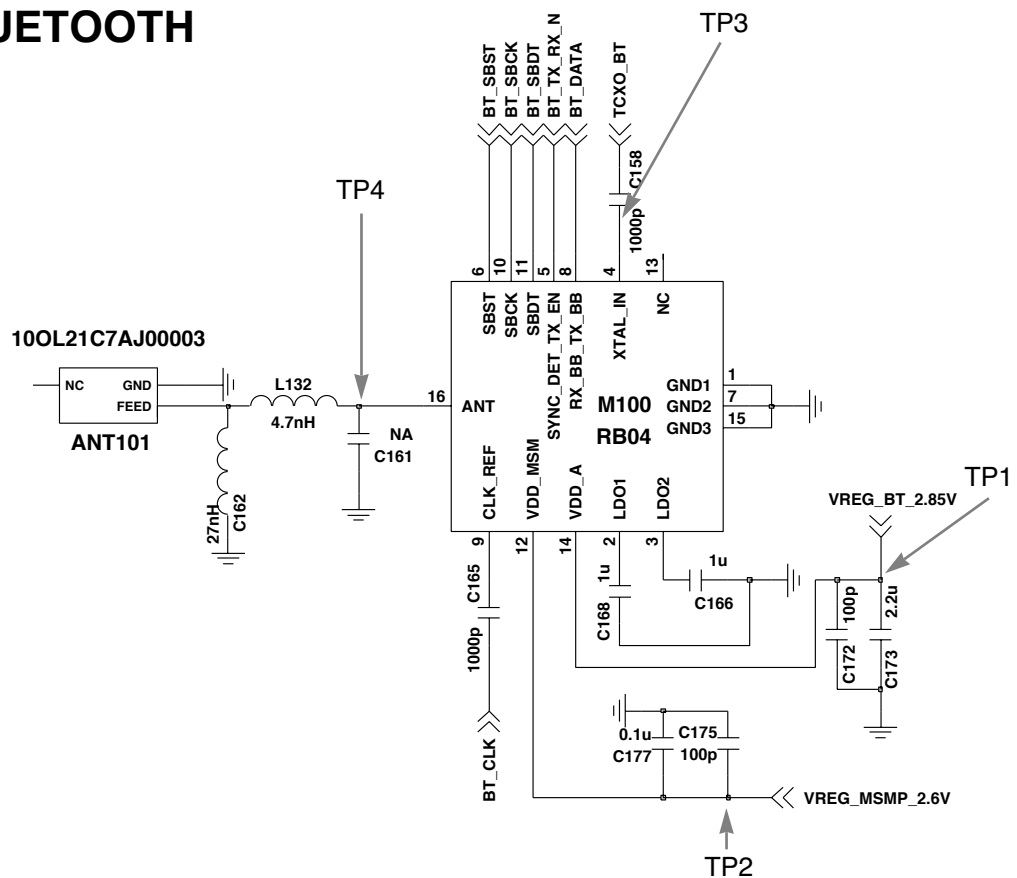


4. TROUBLE SHOOTING

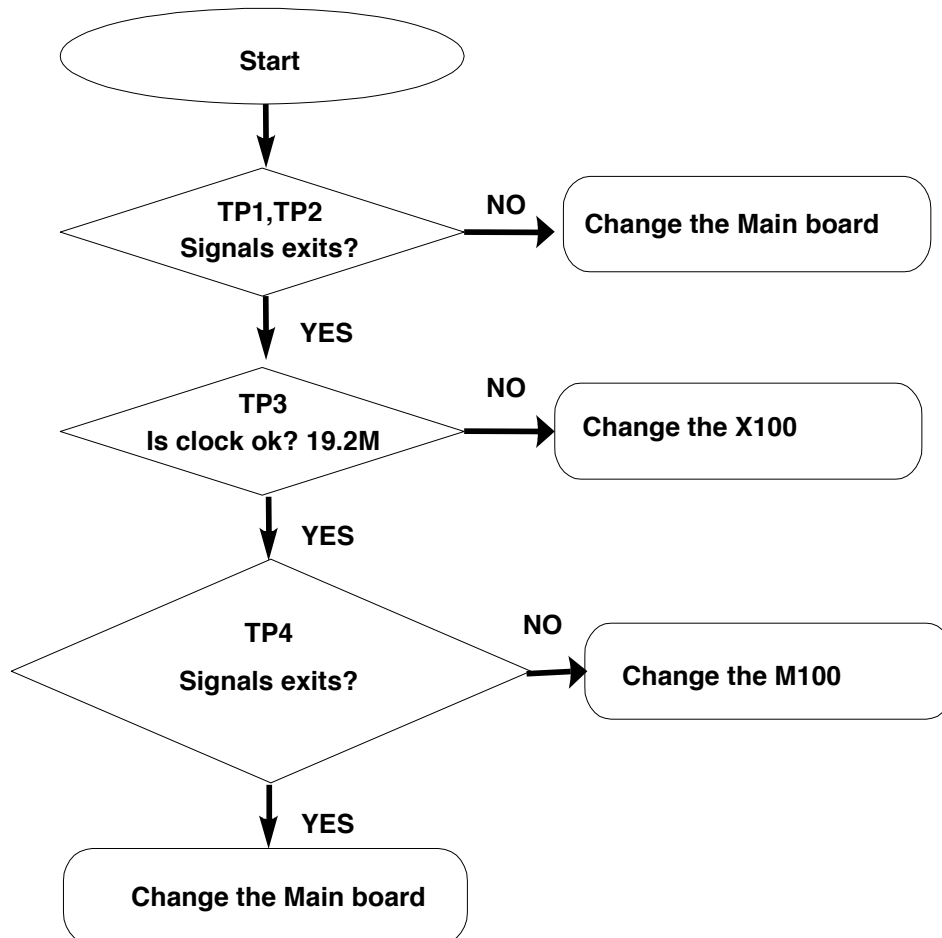
4.5.4 BLUETOOTH Checking Block



BLUETOOTH



4. TROUBLE SHOOTING



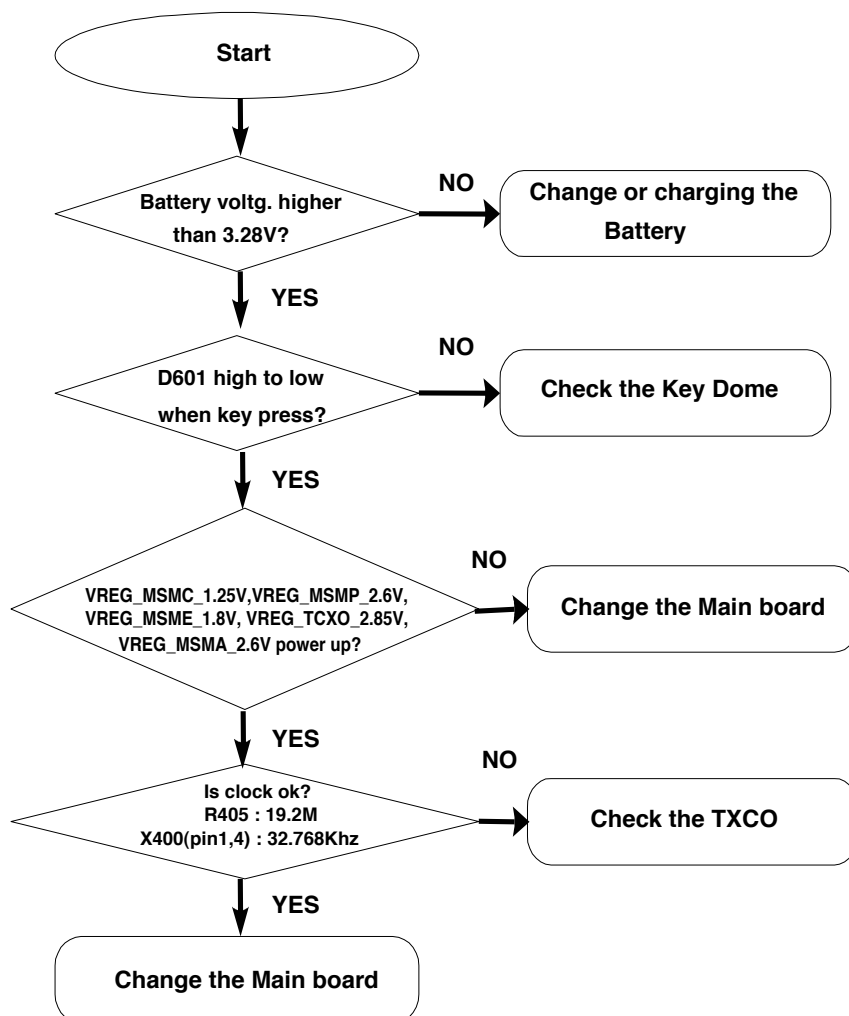
4. TROUBLE SHOOTING

4. BB Trouble Shooting

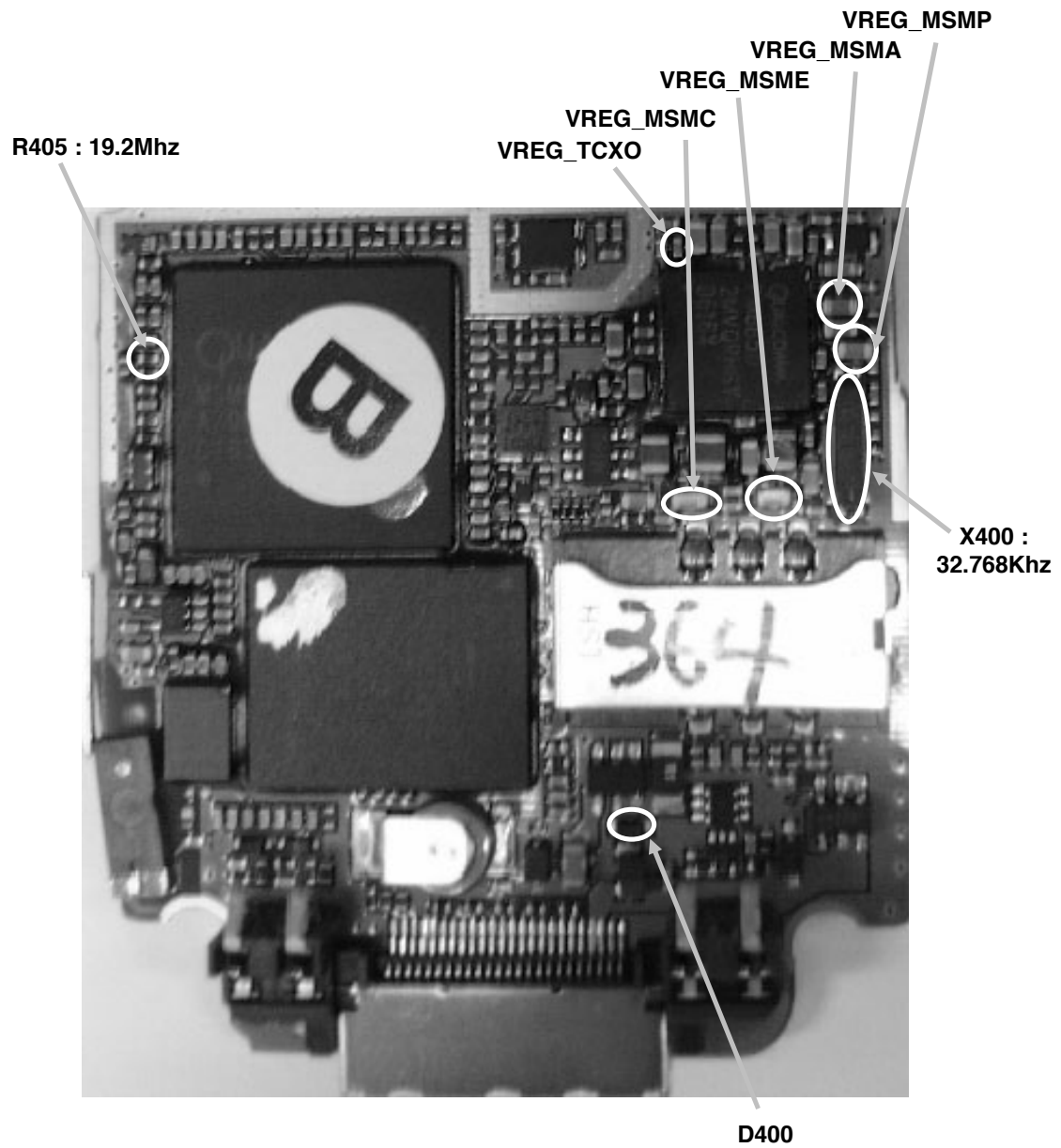
4.6 Power ON Troubleshooting

Power On sequence of CU405 is :

PWR key press(Key PCB) → KEY_ON_SW_N go to low(D601),PM6650 KPDPWR_N pin(24) → PM6650 Power Up → VREG_MSMC_1.25V(C434), VREG_MSME_1.8V(C435), VREG_MSMP_2.6V(C427), VREG_MSMA_2.6V(C425), VREG_TCXO_2.85V(C414) power up and system reset assert to MSM → Phone booting and PS_HOLD(D400) assert to PMIC



4. TROUBLE SHOOTING

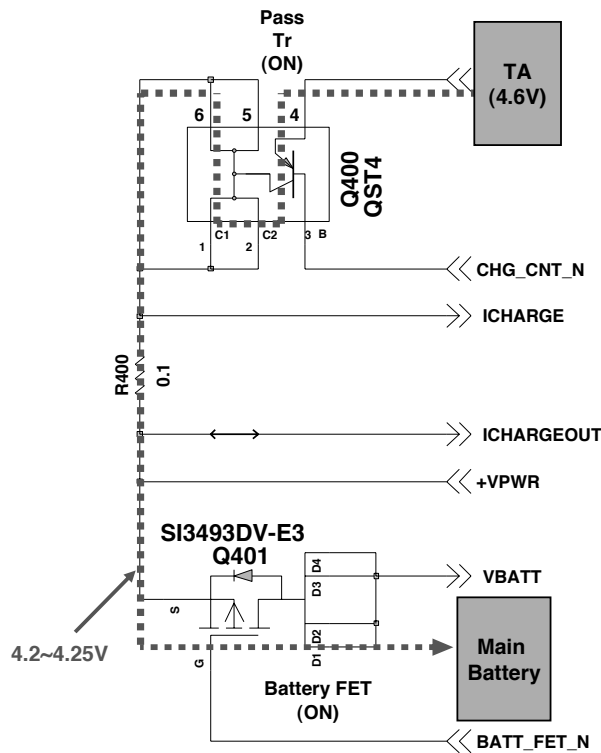


4. TROUBLE SHOOTING

4.7 Charger Troubleshooting

Charging Current Flow

Differential lines, route as equal length as possible !! --> ICHARGE , ICHARGEOUT



Charging Procedure

- Connect TA
- Control the charging current by PM6650 IC
- Charging current flows into the battery

Check Point

- Connection of TA
- Charging current path
- Battery

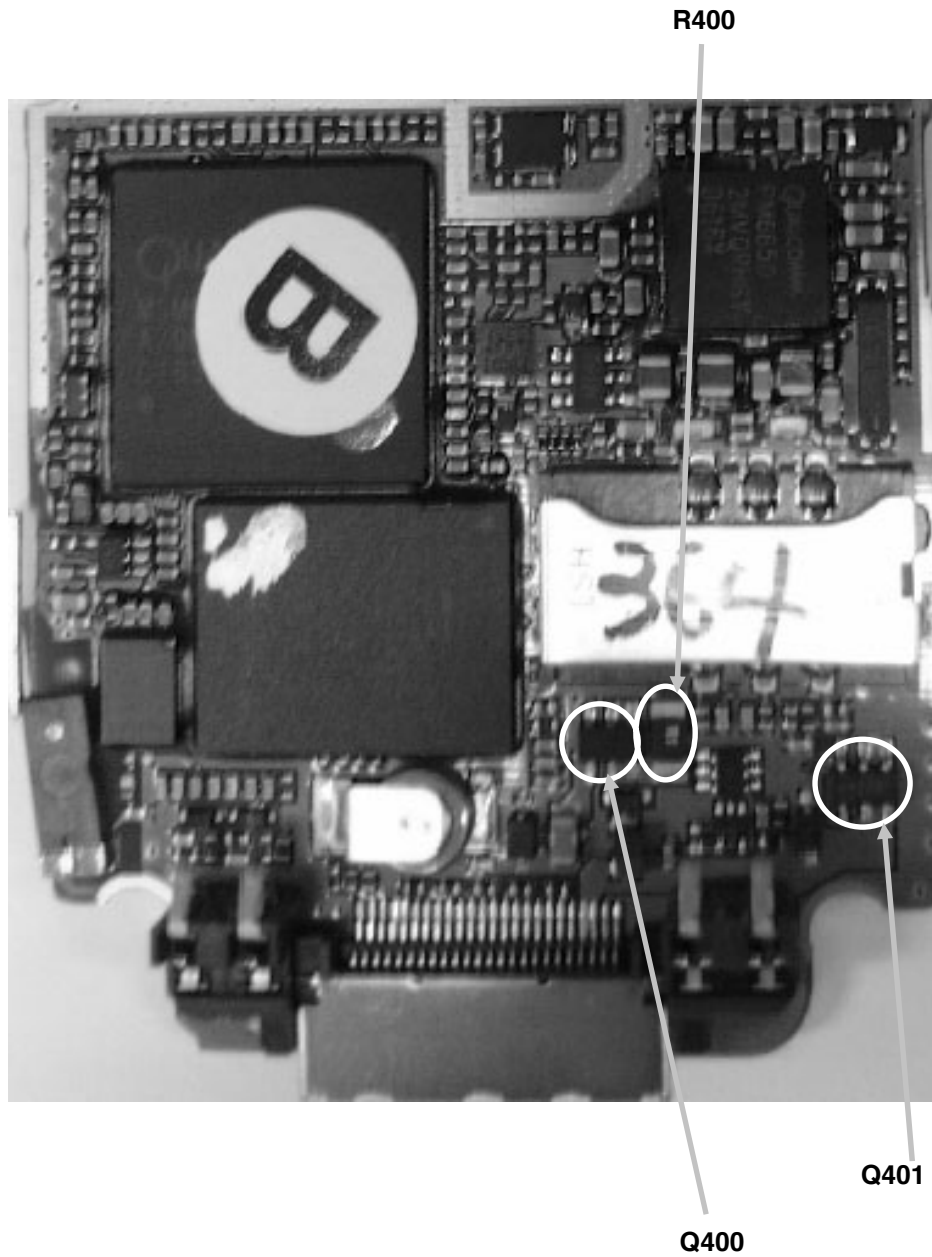
Troubleshooting Setup

- Connect TA and battery to the phone

Troubleshooting Procedure

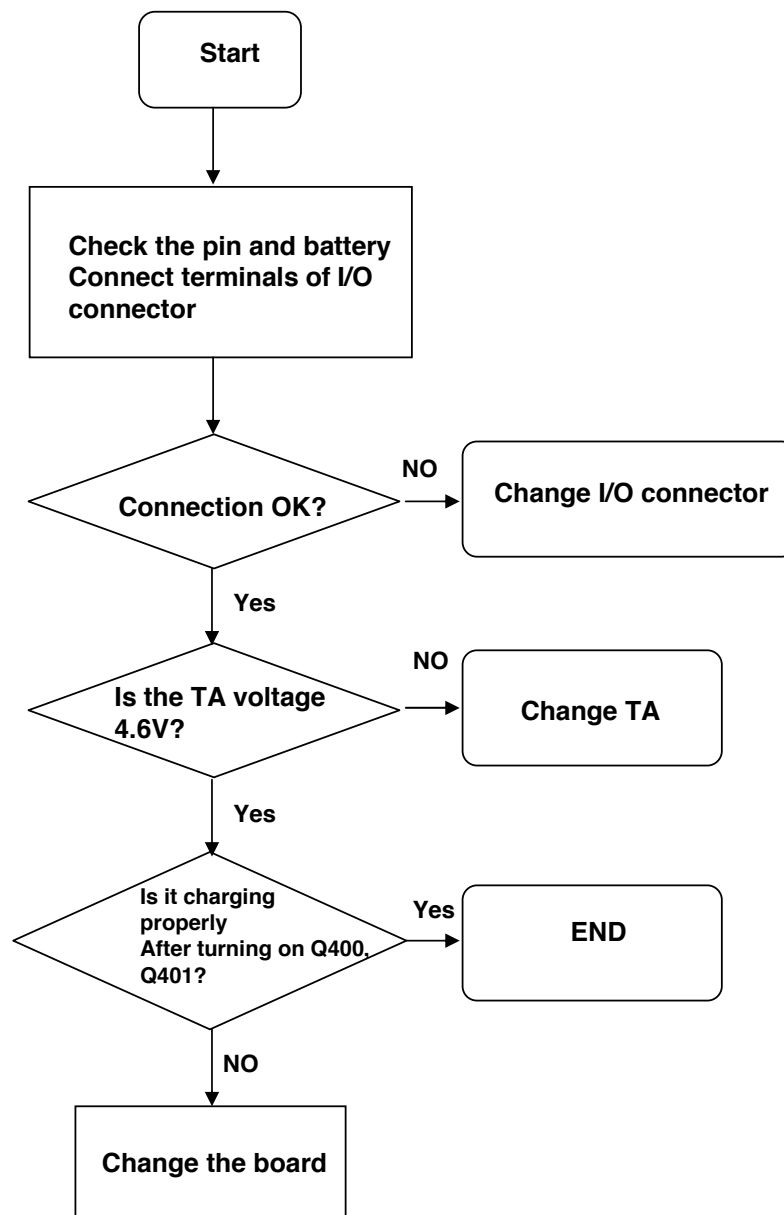
- Check the charger connector
- Check the charging current Path
- Check the battery

4. TROUBLE SHOOTING



4. TROUBLE SHOOTING

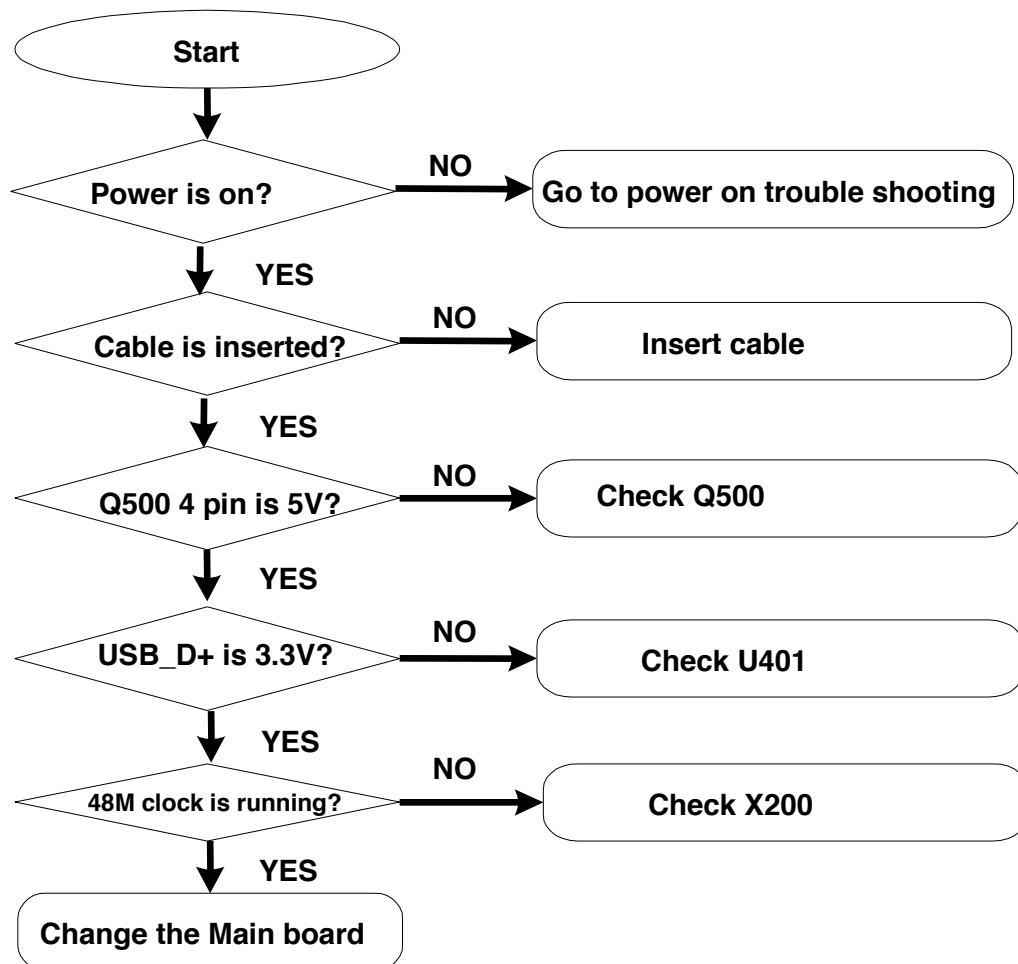
Troubleshooting Flow



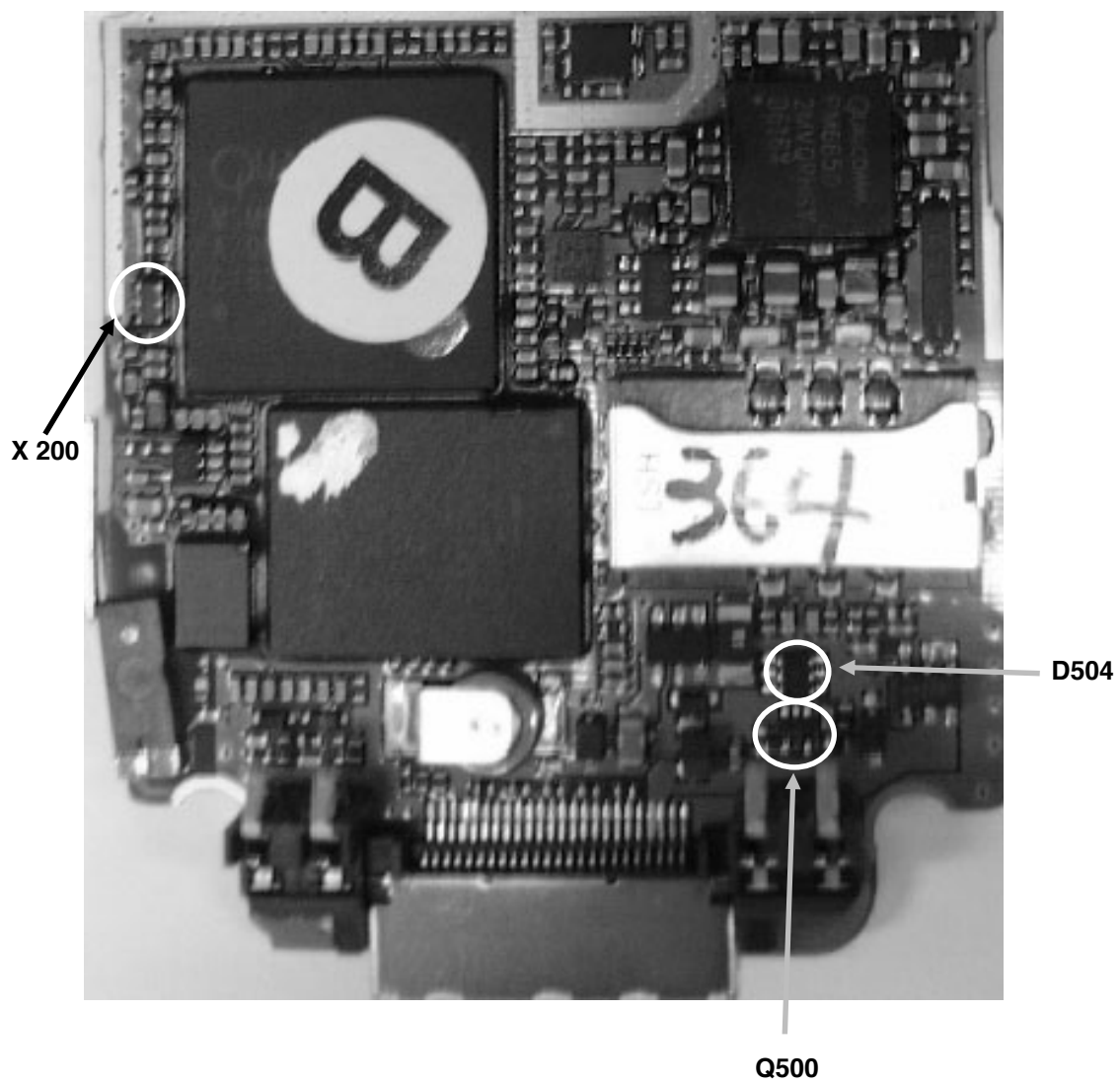
4.8 USB Troubleshooting

USB Initial sequence of CU405 is :

USB connected to CU405 power on → USB_VBUS(Q500) go to 5V → USB_D+ go to 3.3V → 48M Crystal on → USB_VP and USB_VN is triggered → USB work.



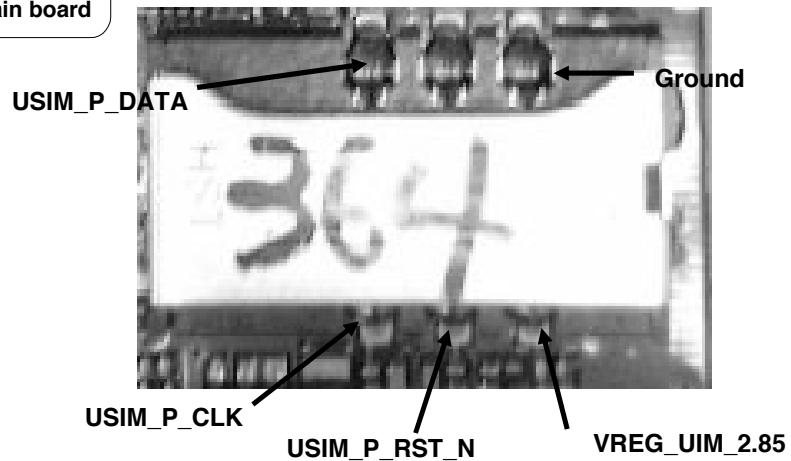
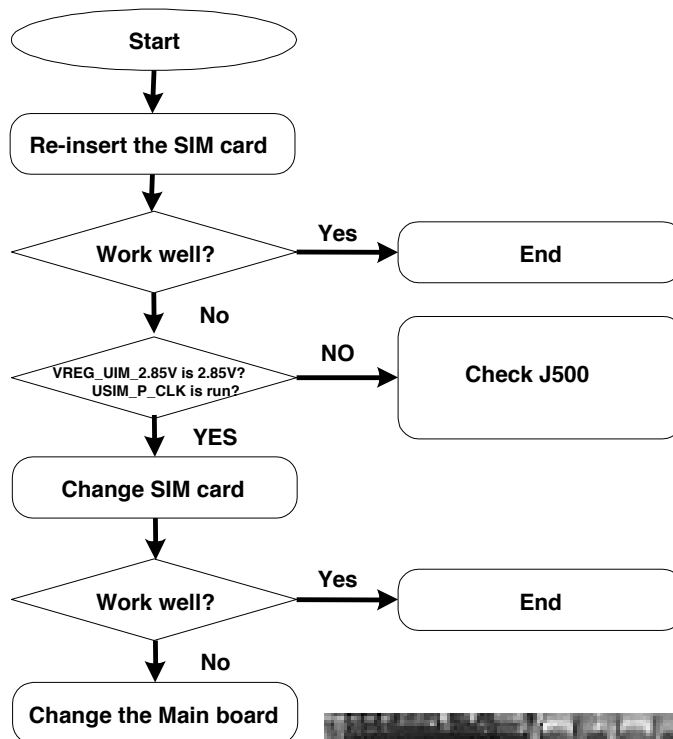
4. TROUBLE SHOOTING



4.9 SIM Detect Troubleshooting

USIM Initial sequence of CU405 is :

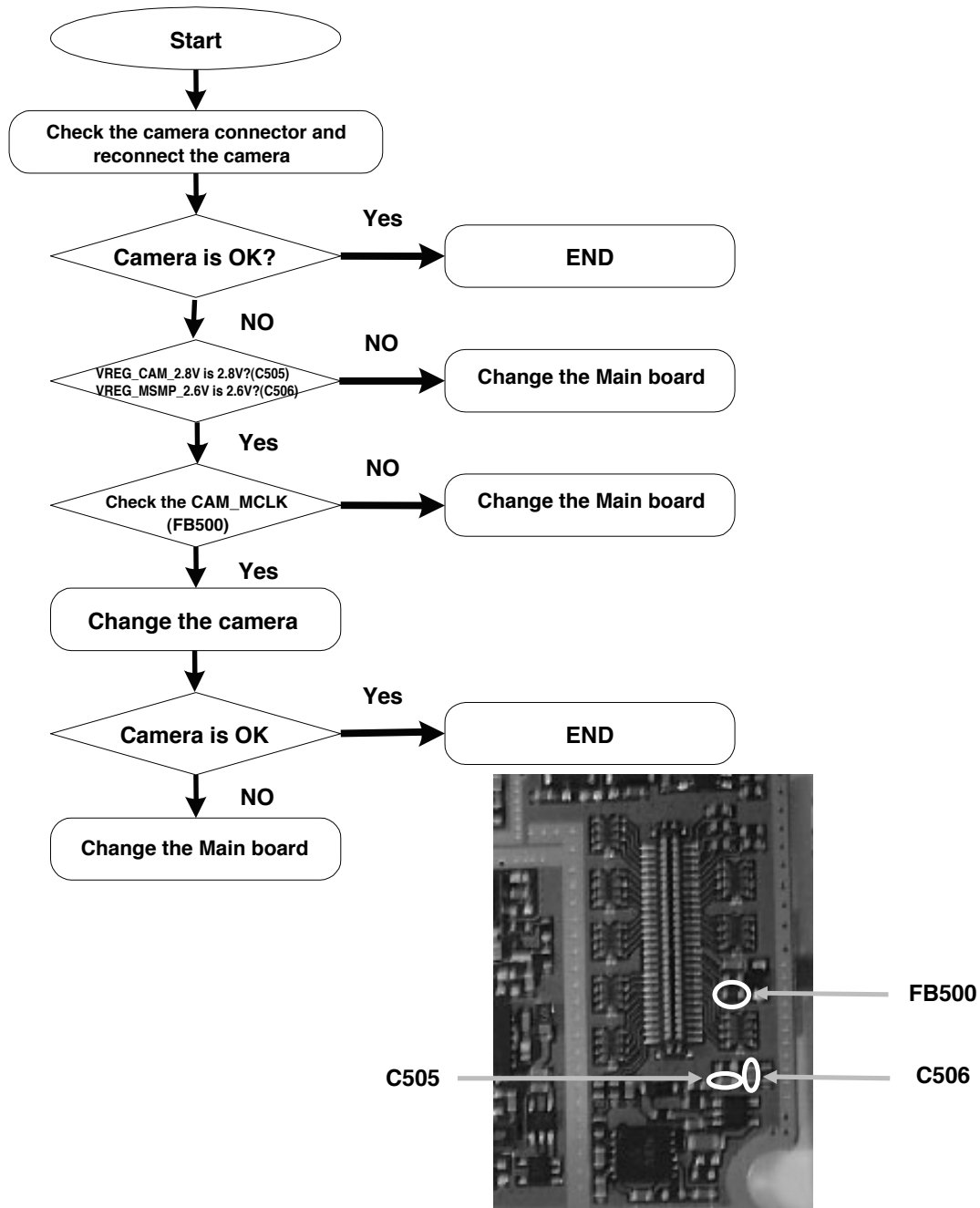
USIM_CLK,USIM_RST,USIM_DATA triggered → VREG_UIM_2.85V go to 2.8V → USIM IF work



4. TROUBLE SHOOTING

4.10 Camera Troubleshooting

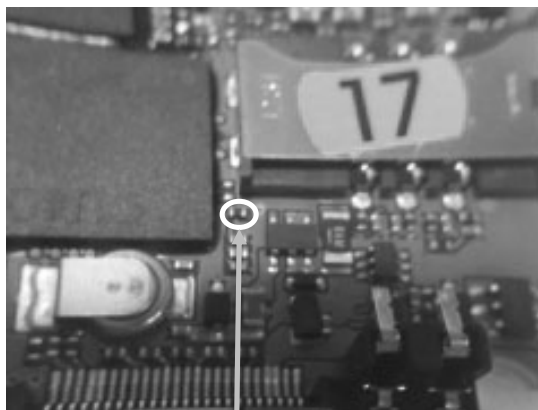
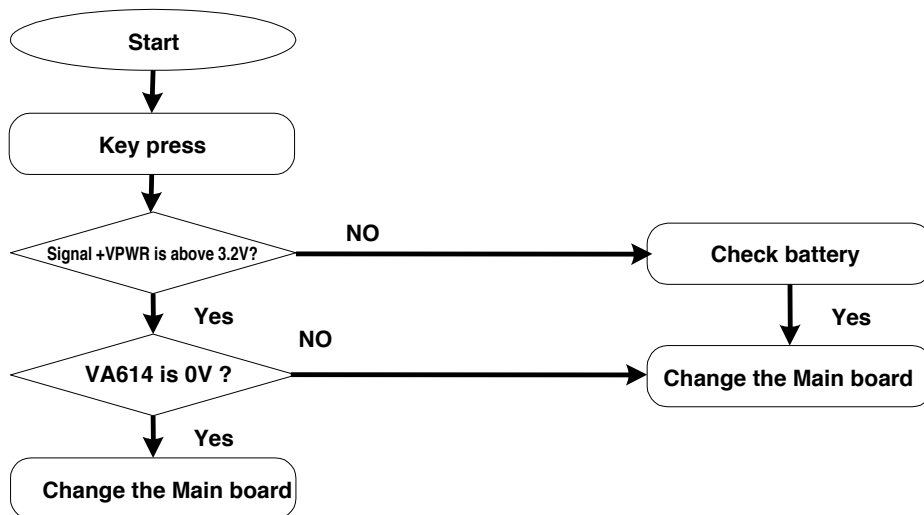
Camera control signals are generated by MSM6280.



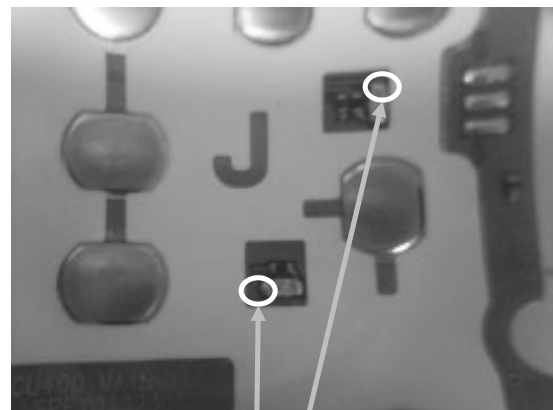
4.11 Keypad Backlight Troubleshooting

Key Pad Back Light is on as below :

Key pressing → KYBD_BACKLIGHT go to 0V → Main LED On



VA614



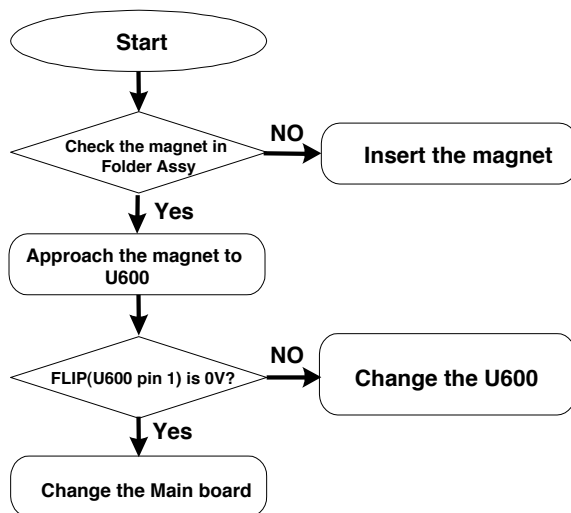
VPWR

4. TROUBLE SHOOTING

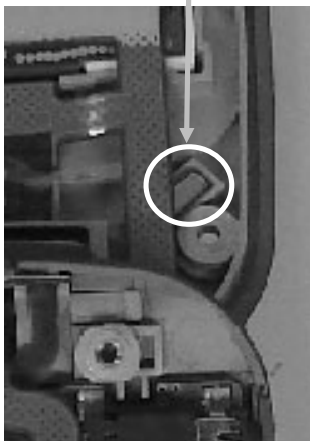
4.12 Folder ON/OFF Troubleshooting

Folder On/Off is worked as below :

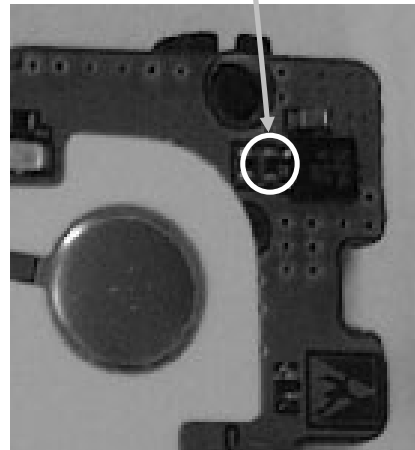
Folder On/Off Event -> Flip(U600 pin OUT) is triggered(On : about 2.1V, Off : 0V) -> MSM6280 Sense the Folder Event



magnet

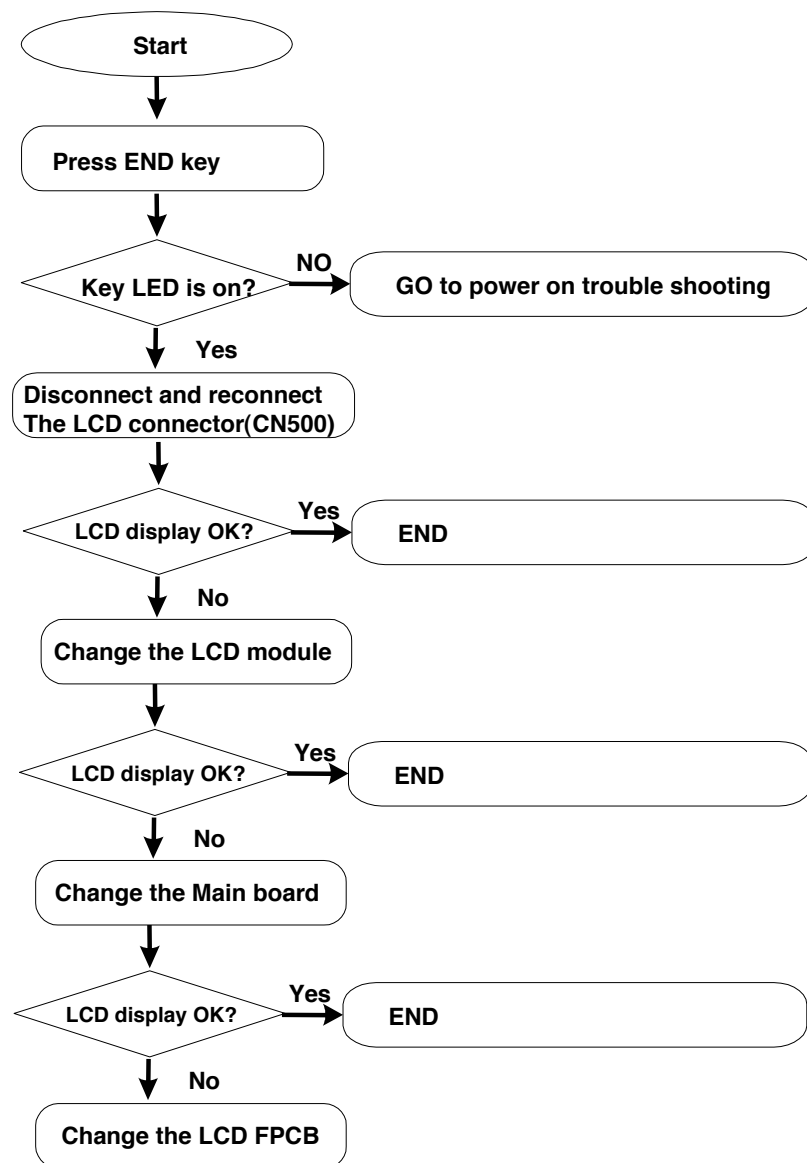


U600 OUT Pin



4.13 Main LCD Troubleshooting

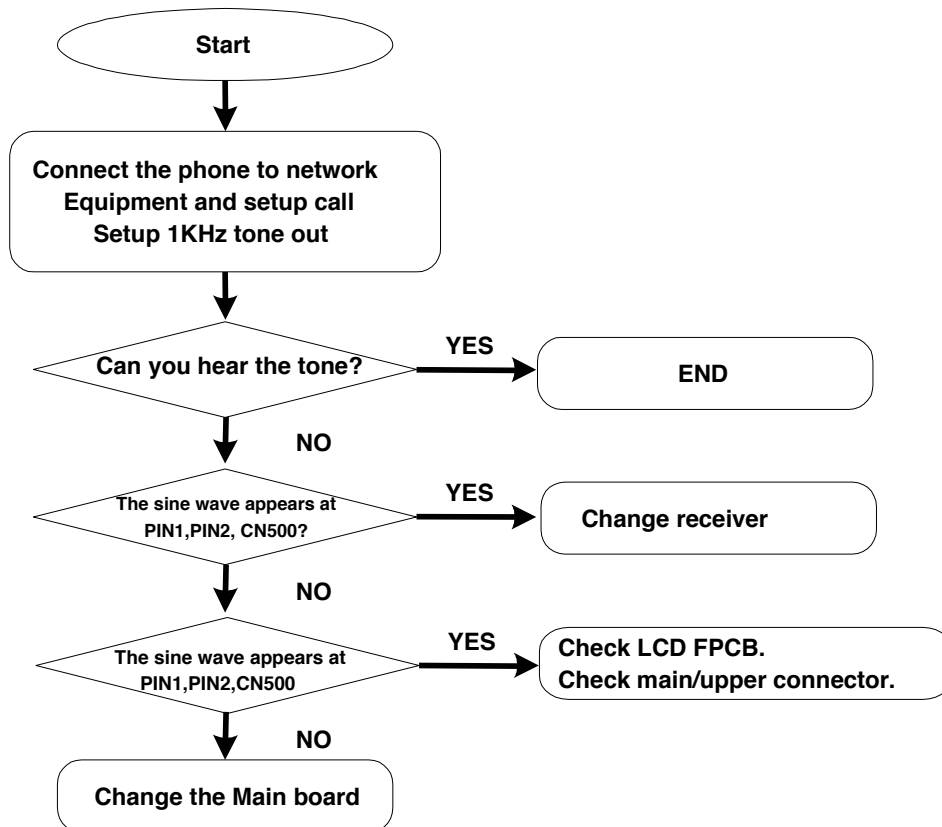
Main LCD control signals are generated by MSM6280. The signal path is :
MSM6280 → C0N500 → CN102 → LCD Module



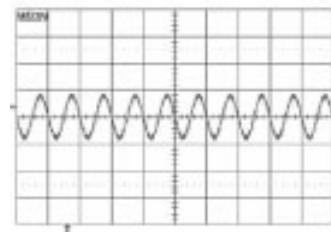
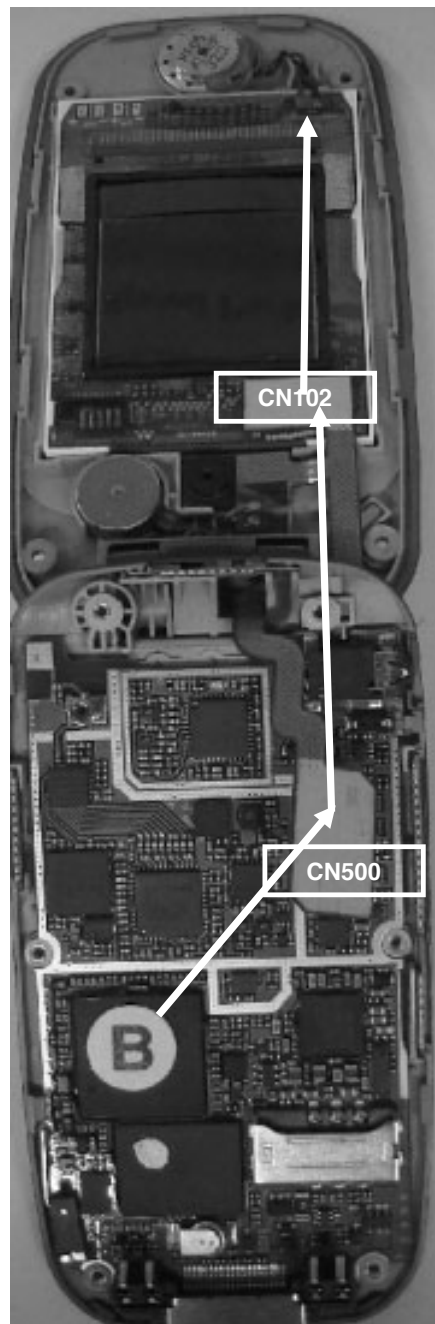
4. TROUBLE SHOOTING

4.14 Receiver Path

MSM6280 EAR1ON/EAR1OP → CN500 → CN102 → Receiver



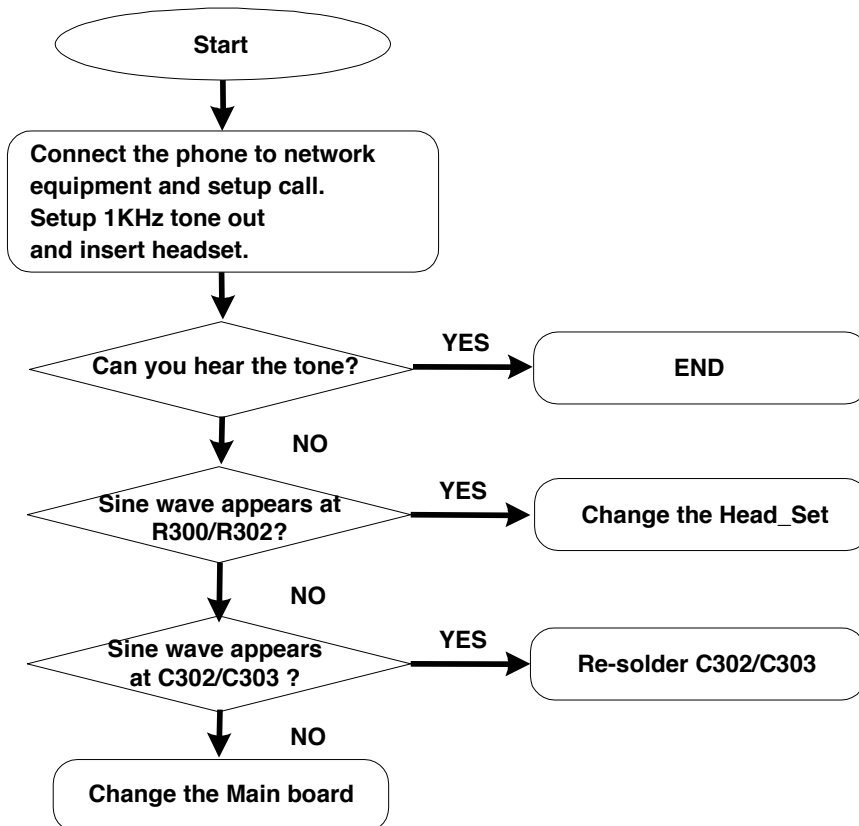
4. TROUBLE SHOOTING



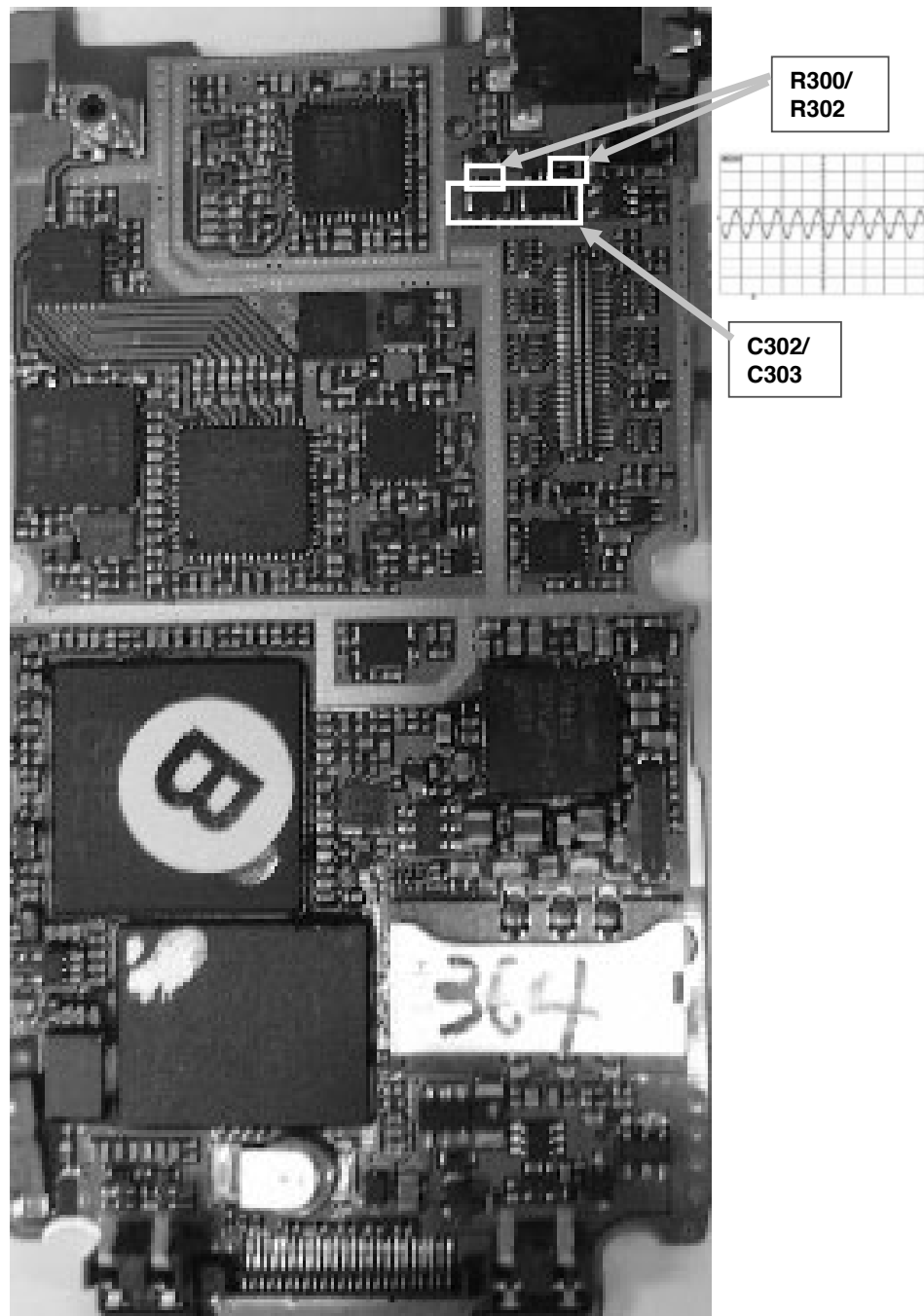
4. TROUBLE SHOOTING

4.15 Headset path

MSM6280 HPH_R, HPH_L → C302/C303 → R300/R302 → CON300(Earjack)



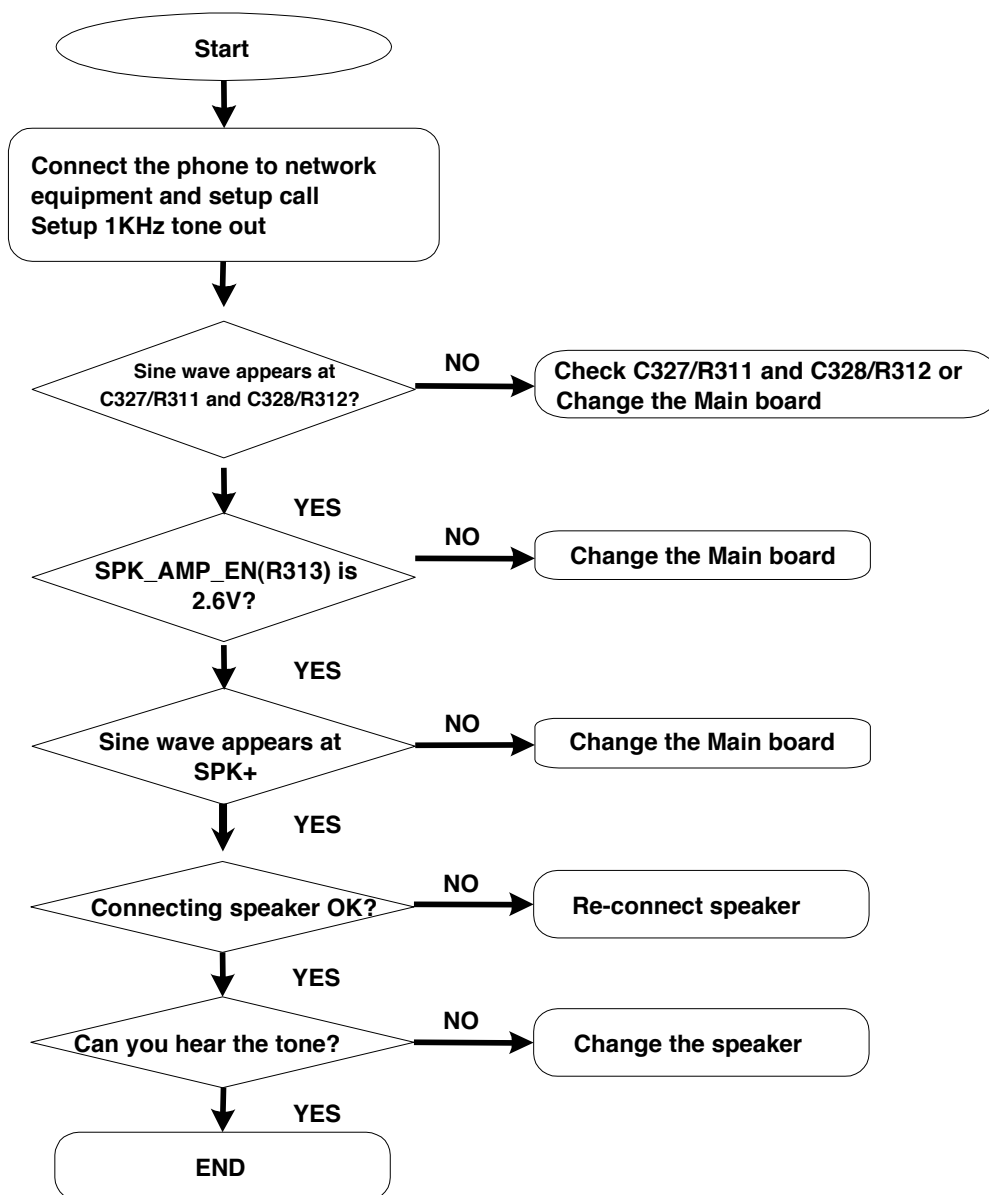
4. TROUBLE SHOOTING



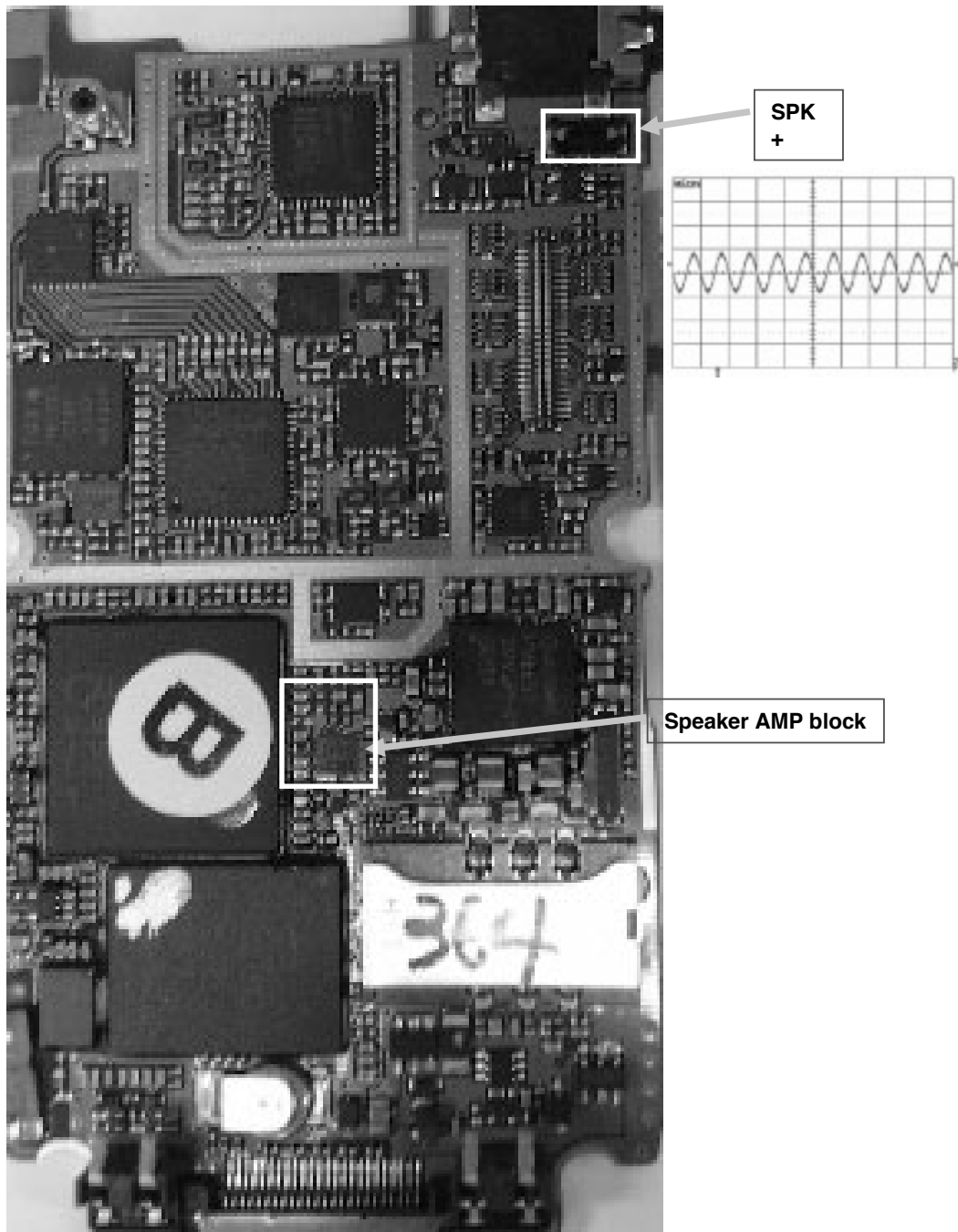
4. TROUBLE SHOOTING

4.16 Speaker phone path

MSM6280 Line_R, Line_L
Audio AMP(U301)
→ connector → Speaker



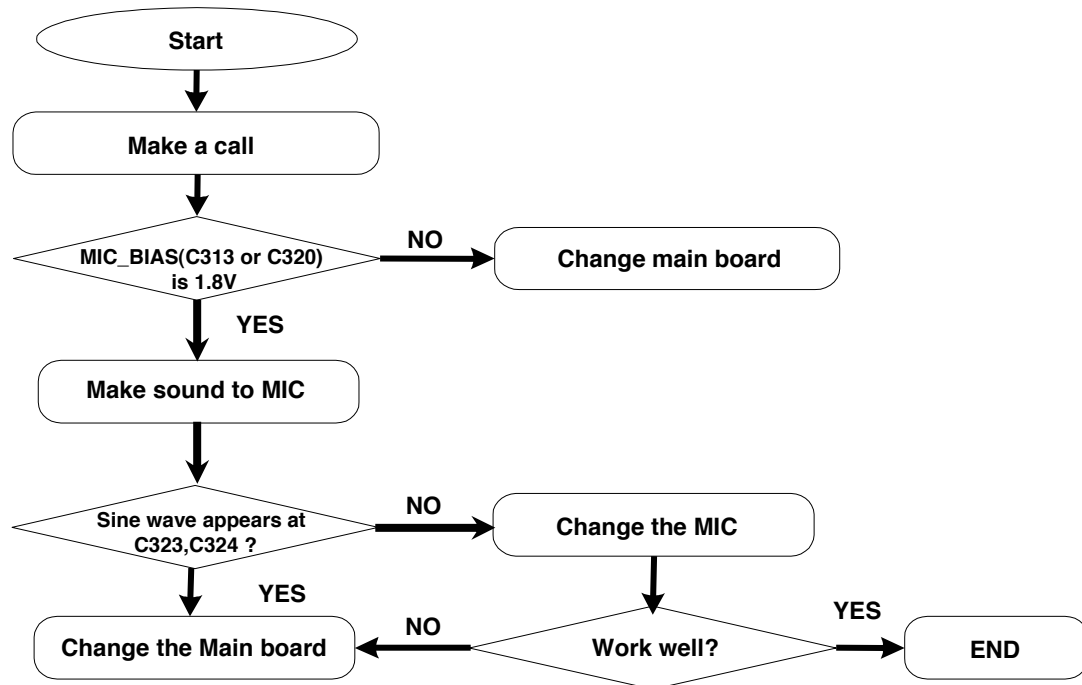
4. TROUBLE SHOOTING



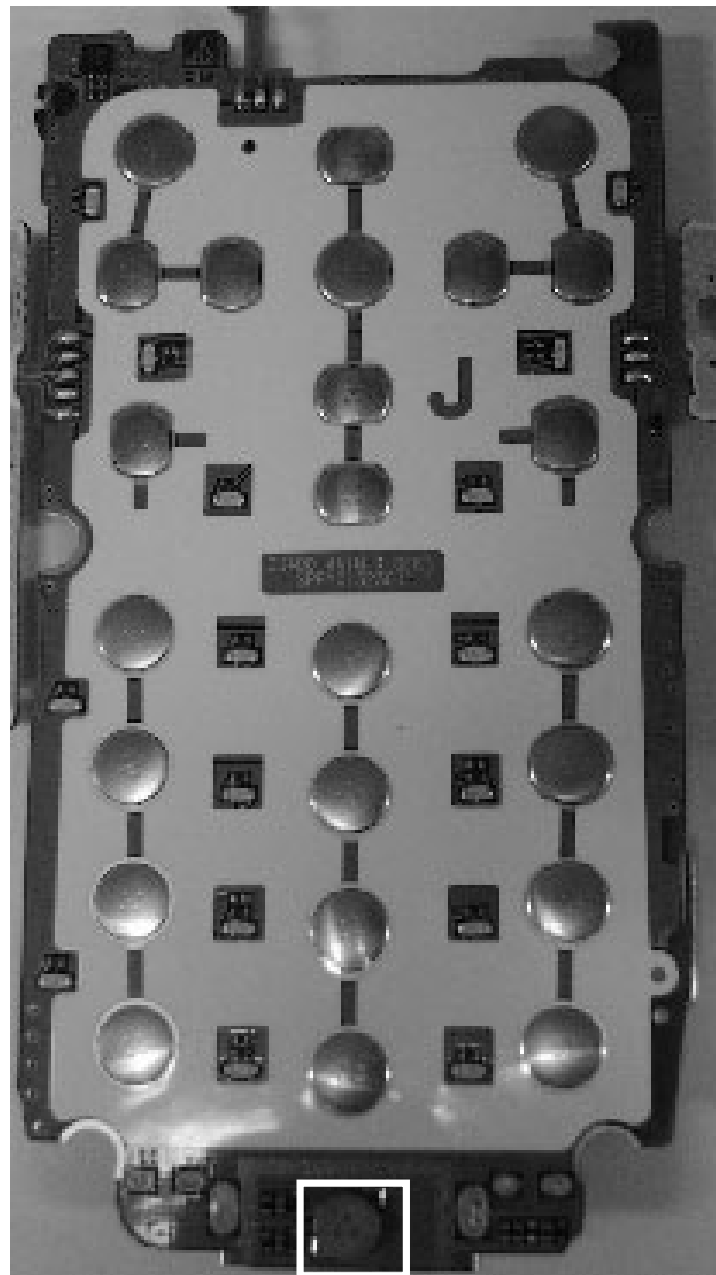
4. TROUBLE SHOOTING

4.17 Main microphone

MIC300 → C323,C324 → MIC1P,MIC1N(MSM6280)



4. TROUBLE SHOOTING

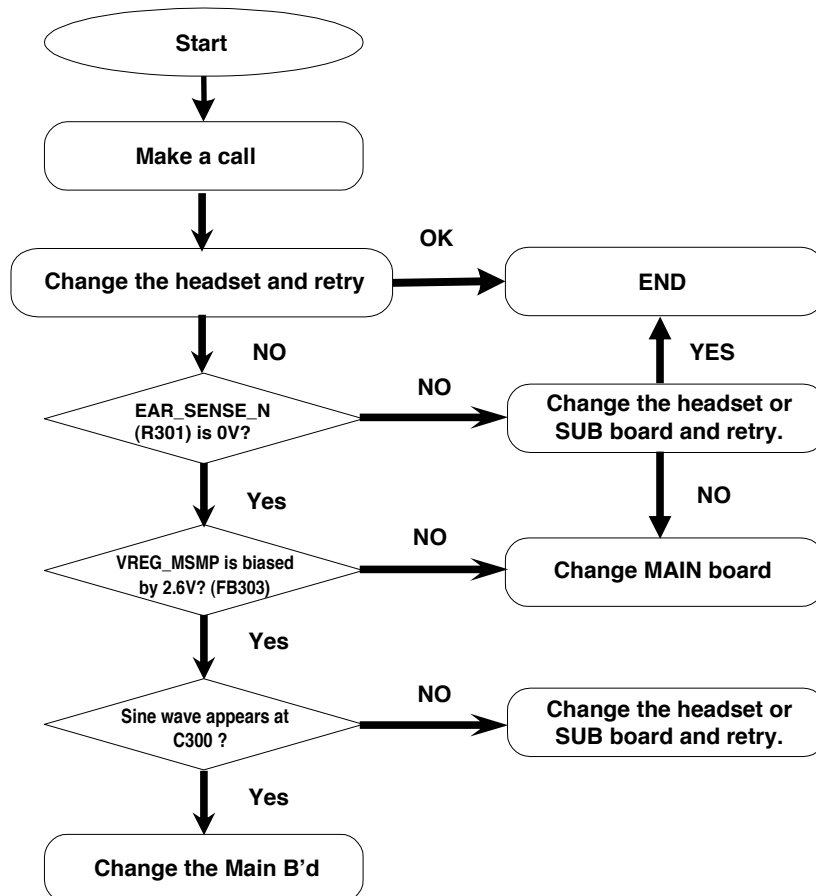


MIC300

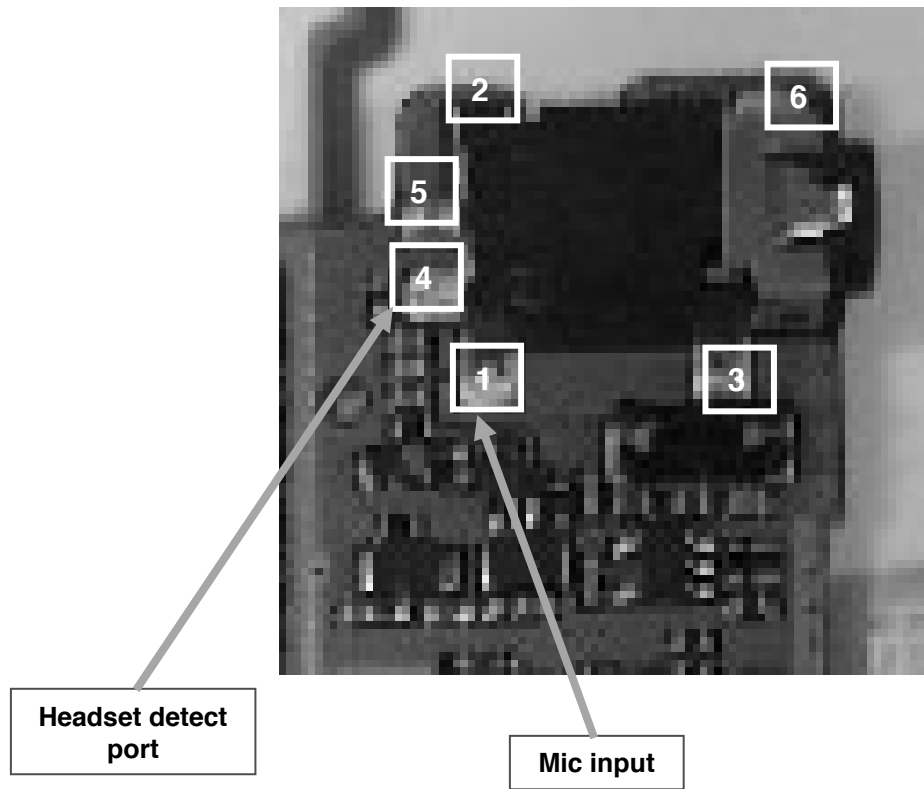
4. TROUBLE SHOOTING

4.18 Headset microphone

Headset → C300 → MIC2P(MSM6280)



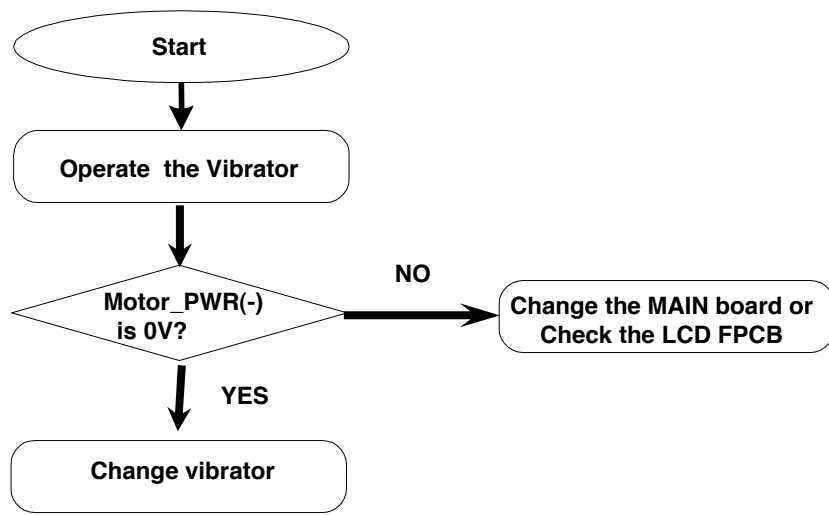
4. TROUBLE SHOOTING



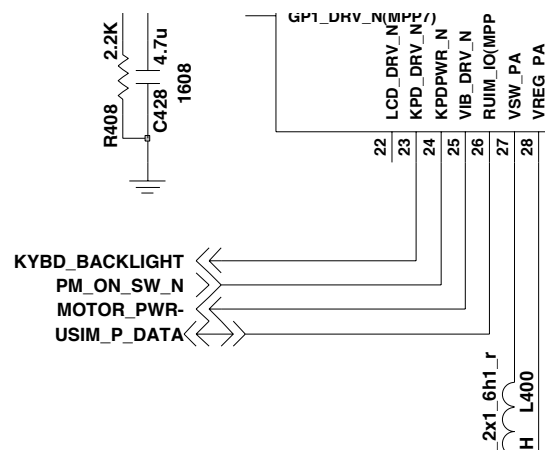
4. TROUBLE SHOOTING

4.19 Vibrator

PM6650 Motor_ PWR- Go to 0V → LCD FPCB → Motor



Motor_PWR-



5. DOWNLOAD

5.1 Introduction

LGMDP is a LGE application that allow users to download images from PC to handset. LGMDP is a download tool with capabilities to upload image files to the handset. LGMDP is designed to be simple to use and easy enough for the beginner to upload executable images to the handset. LGMDP supports Windows 2000/XP where the LG (Ver 4.6 or later) USB modem driver is installed. Additionally, LGMDP allows multi downloading up to 8 handsets at the same time.

5.2 Downloading Procedure

1) Setup Preferences

Connect the phone to your desktop PC using the USB cable and run the LGMDP application. Before getting started, set up LGMDP preferences from the Preferences of the file menu the way you want. Click on the File menu and select Preferences.

➤ Play a success sound

This is an experimental feature. To enable this simply check the box. It will be played a .wav file when the download has been completed.

➤ Automatically run "Select Port" When LGMDP starts

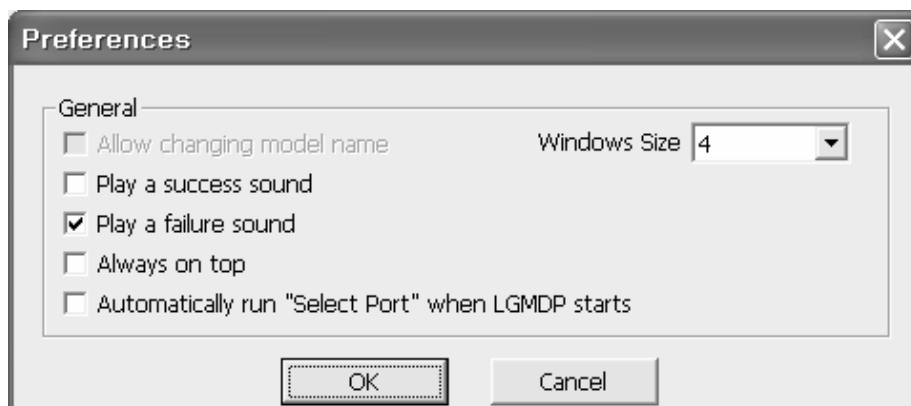
This option is designed to give user convenient. When LGMDP starts, it will automatically select "Select Port" button to download new image file.

➤ Always on Top

Check if LGMDP always appears at the top of the window so that user can monitor it all the time.

➤ Windows Size

If you want to change program window size, change this option.

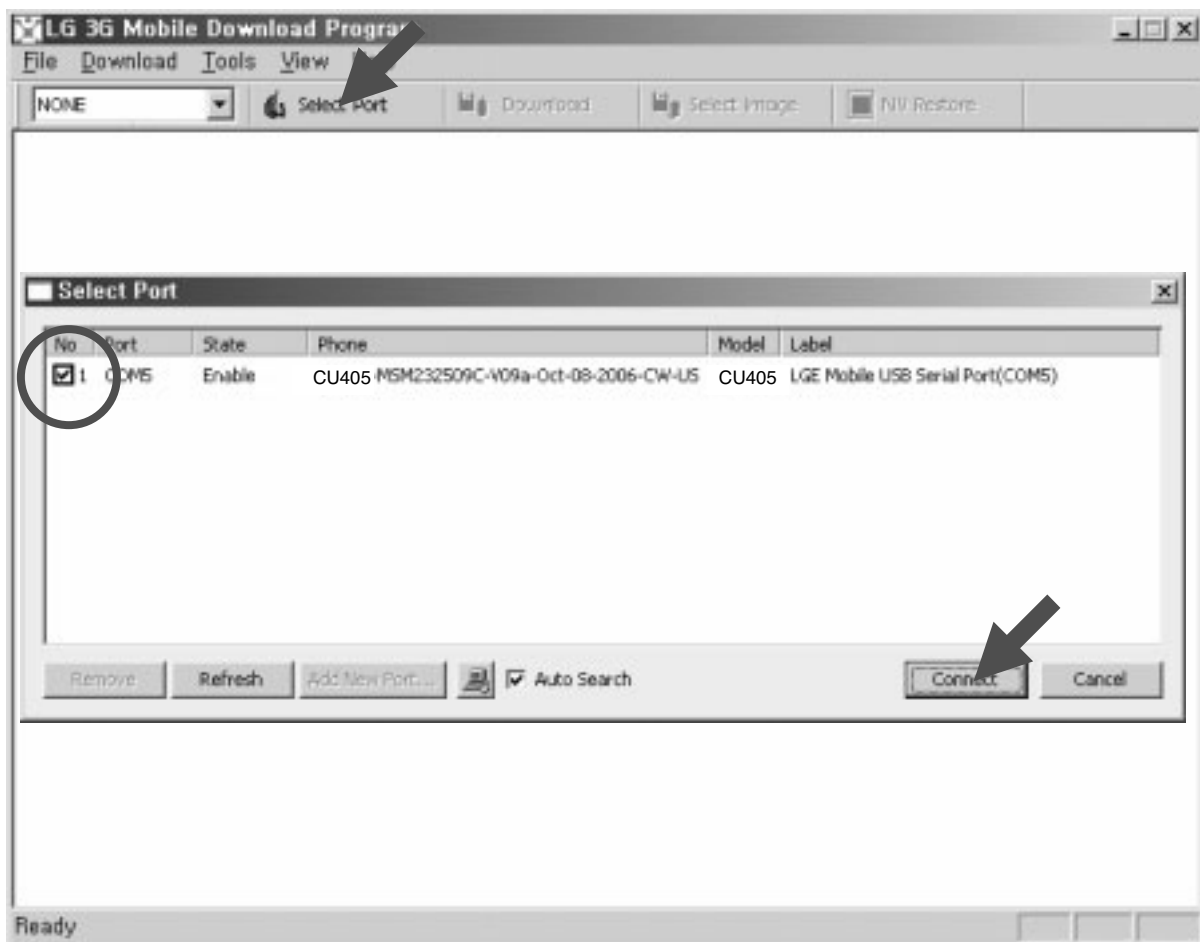


5. DOWNLOAD

1) Connecting to PC

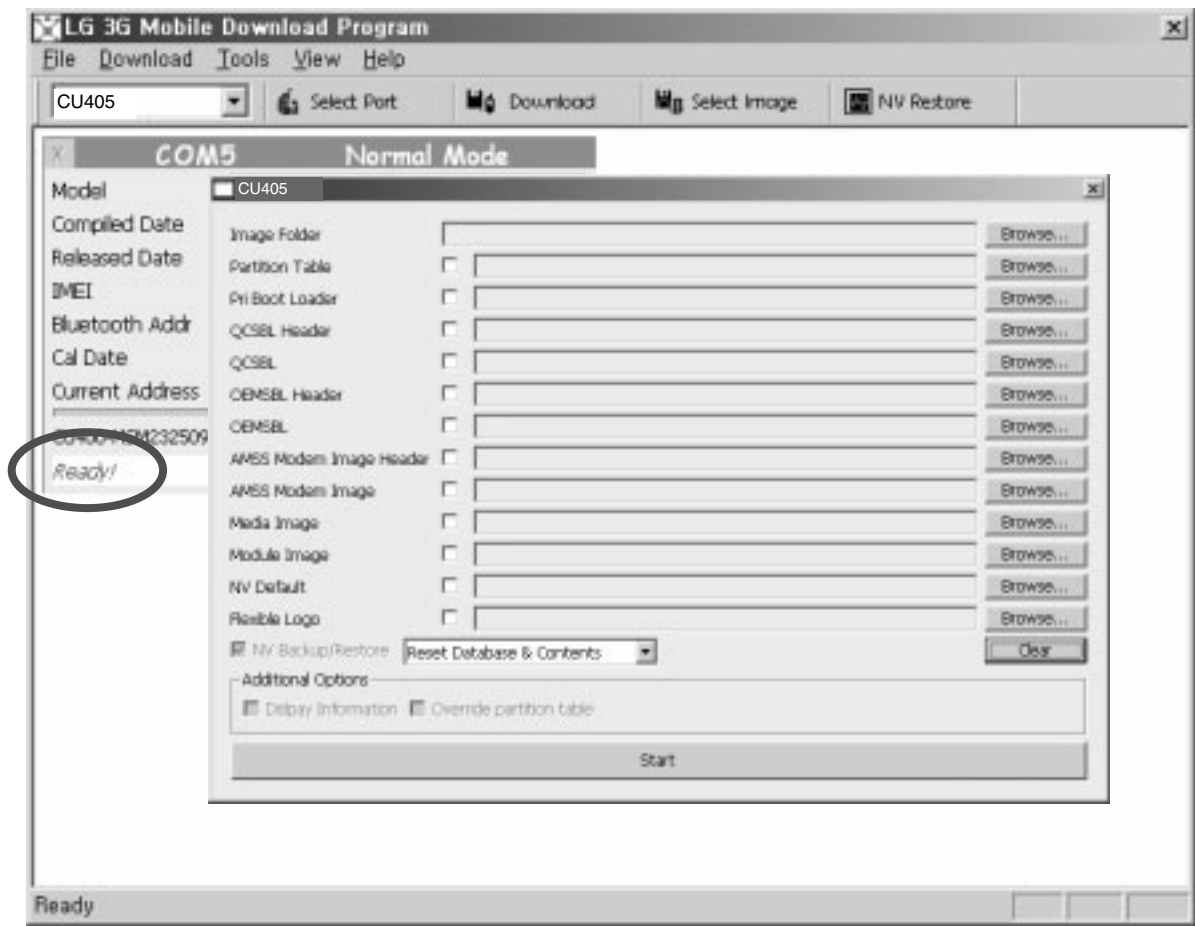
Click on the Select Port and then Select Port window will be pop up. Check if state shows Enable for the port to be connected for downloading images. Then click on the Connect button.

(The port number(COM7) and model name shall be different from that of the port number in the snapshot.)



5. DOWNLOAD

The status Ready is displayed when the application is ready for downloading. While the images are transmitted from PC to the handset, a progressive bar (Red box) indicating the degree of transmission of data is displayed.



5. DOWNLOAD

The following slide describes how to use or set options in detail.

(The model name shall be different from that of the model name in the snapshot.)

The screenshot shows the 'CU405' download utility window. It features a list of image files to be downloaded, each with a checkbox and a file path. Below the list are options for NV Backup/Restore, Additional Options, and a Start button. Numbered annotations 1 through 8 point to specific elements in the interface.

Image Folder			
1) Image Folder		D:\project\CU405\build\wms\Bin\CU400JR	Browse...
2) Partition Table	<input checked="" type="checkbox"/>	D:\project\CU405\build\wms\Bin\CU400JR\partition.mbn	Browse...
Pri Boot Loader	<input checked="" type="checkbox"/>	D:\project\CU405\build\wms\Bin\CU400JR\pbl.mbn	Browse...
QCSBL Header	<input checked="" type="checkbox"/>	D:\project\CU405\build\wms\Bin\CU400JR\qcsblhd_cfgdata.mbn	Browse...
QCSBL	<input checked="" type="checkbox"/>	D:\project\CU405\build\wms\Bin\CU400JR\qcsbl.mbn	Browse...
OEMSBL Header	<input checked="" type="checkbox"/>	D:\project\CU405\build\wms\Bin\CU400JR\oemsblhd.mbn	Browse...
OEMSBL	<input checked="" type="checkbox"/>	D:\project\CU405\build\wms\Bin\CU400JR\oemsbl.mbn	Browse...
AMSS Modem Image Header	<input checked="" type="checkbox"/>	D:\project\CU405\build\wms\Bin\CU400JR\amsshd.mbn	Browse...
AMSS Modem Image	<input checked="" type="checkbox"/>	D:\project\CU405\build\wms\Bin\CU400JR\amss.mbn	Browse...
Media Image	<input checked="" type="checkbox"/>	D:\project\CU405\build\wms\Bin\CU400JR\CU400-MEDIA-V09a+-	Browse...
Module Image	<input checked="" type="checkbox"/>	D:\project\CU405\build\wms\Bin\CU400JR\CU400-MODULE-V09a-	Browse...
NV Default	<input type="checkbox"/>		Browse...
Flexible Logo	<input checked="" type="checkbox"/>	D:\project\CU405\build\wms\Bin\CU400JR\booting_logo.flb	Browse...

3) ☒ NV Backup/Restore

4) Reset Database & Contents

6) Clear

5) ☐ Display Information ☐ Override partition table

8) Start

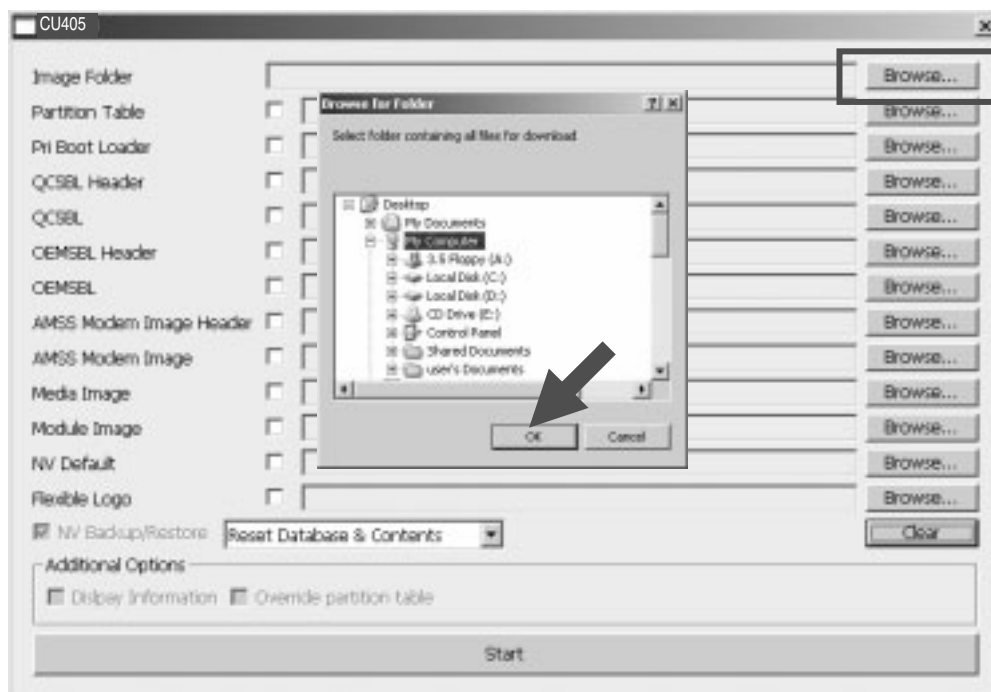
- 1) Image Folder indicates loot path where all image files are placed. To change location of the default image path, select Browse... button. The edit box shows the file path where new images are located. Please note that all images should be located in a selected folder.
(This program support the automatically loading image for some models based on MSM6275 or MSM6280)
- 2) Click on the Browse... button to select image files to be downloaded on the handset.
- 3) NV Backup/Restore: NV Backup/Restore always have to be done, and it is default selected option. Backup the NV data and restore the backed up NV data automatically.
- 4) Reset database & Contents: User related data including the setting data on the EFS is reset in the handset. The contents in the handset will be erased.
Erase_EFS: The calibration data, user contents, media, and module are erased. Only calibration data is kept when NV backup/restore is checked.
Keep All Contents: Maintain user data including WAP, AD, DRM, Email, Play lists, images When downloading a new images, user data stated above are maintained if this option is enable.
- 5) Additional Options:
Display Information is defaultly not selected and user cannot choose.
Security: The security option is automatically selected based on the selected country when security box is selected.
 - Integrity is selected when the selected country is UK, Italy, Hong Kong, Austria, or Israel.
 - Ciphering is not applied or used for H3G user.
 - Fake Security is not applied or used for H3G user.
 - Integrity + Ciphering is selected when the selected country is Australia, Sweden, or Denmark.Please note that user cannot select the options stated above on the security
- 6) Clear: Clearing all directory paths of images in the dialog.
- 7) Override Partition Table : If memory map was changed, you must select this option.
(Defaultly selected option)
- 8) Start : Starting downloading the selected individual image.

5. DOWNLOAD

2) Choosing image files

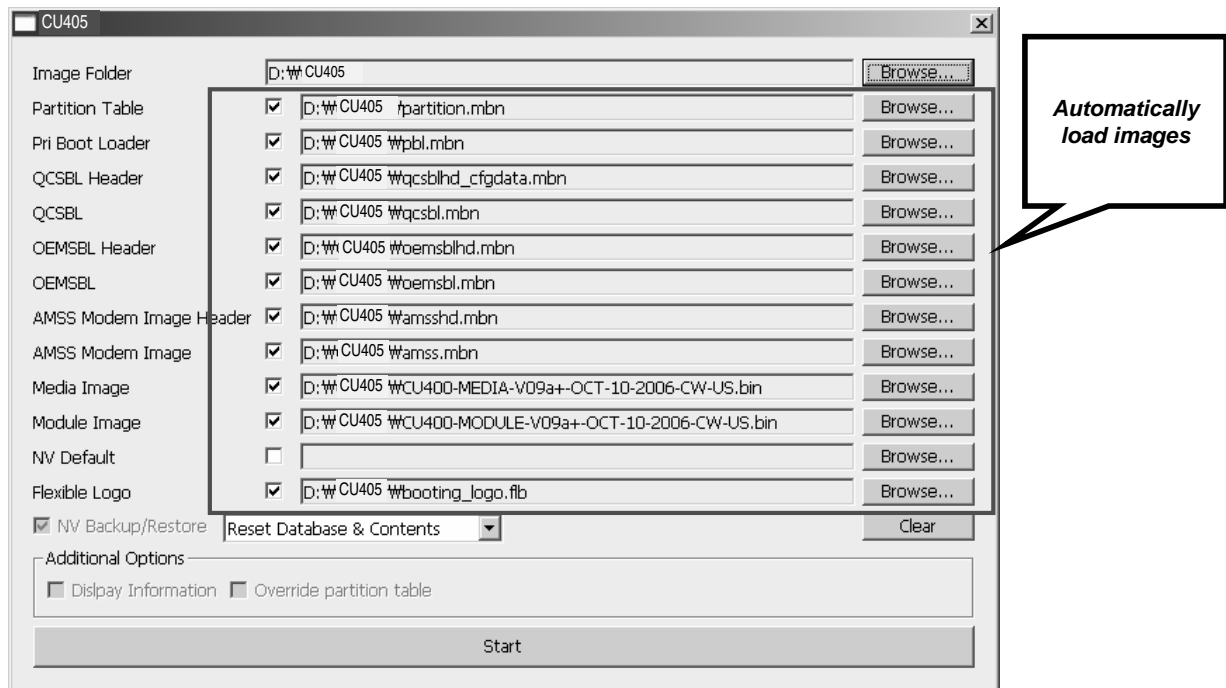
Select the image folder, where all the image files are located, by clicking on the Browse... button. (The folder name shall be different from that of the folder name in the snapshot. The folder name indicates the path where the image files are located.)

★ if you select the image folder, the program will automatically load images accordingly.



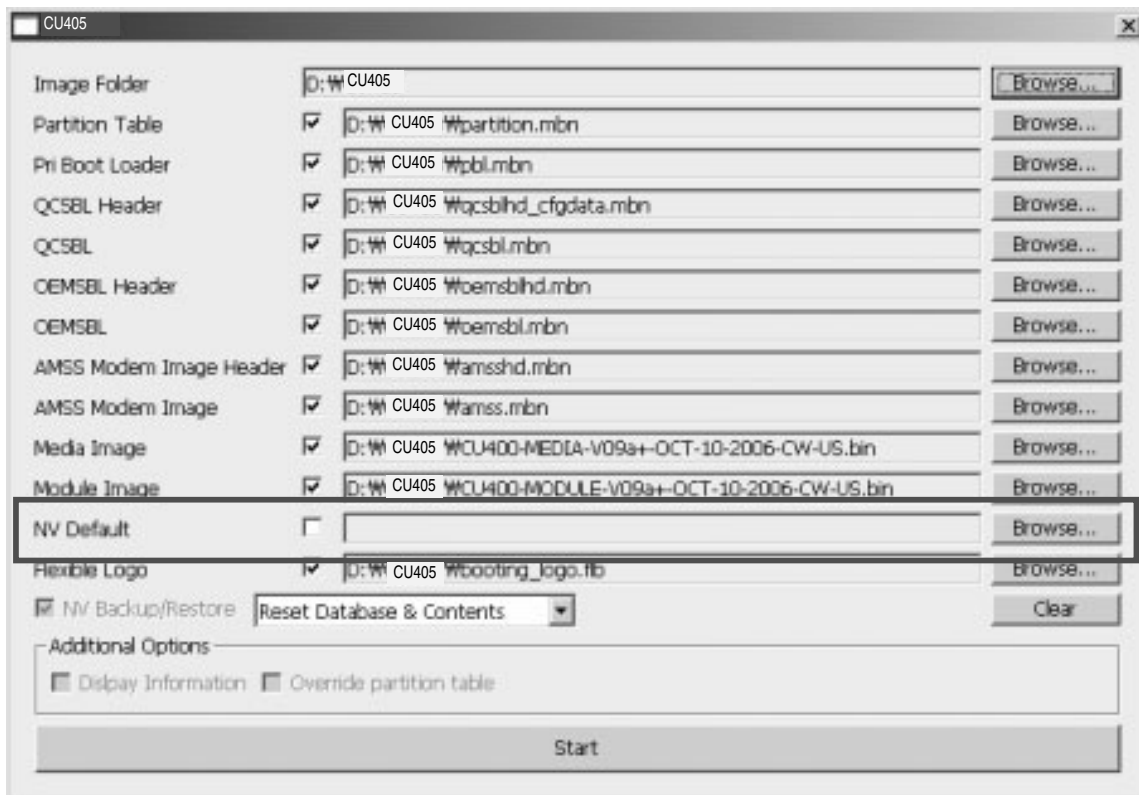
5. DOWNLOAD

★ if you select the image folder, the program will automatically load images accordingly.



5. DOWNLOAD

If NV restore is failed, then the NV Data(*.nv2) is erased permantly. In this case, choose the desired NV file to be downloaded on the handset. To enable this simply check the box or select the NV file from the LGMDP installation directory by clicking on the Browse... button.

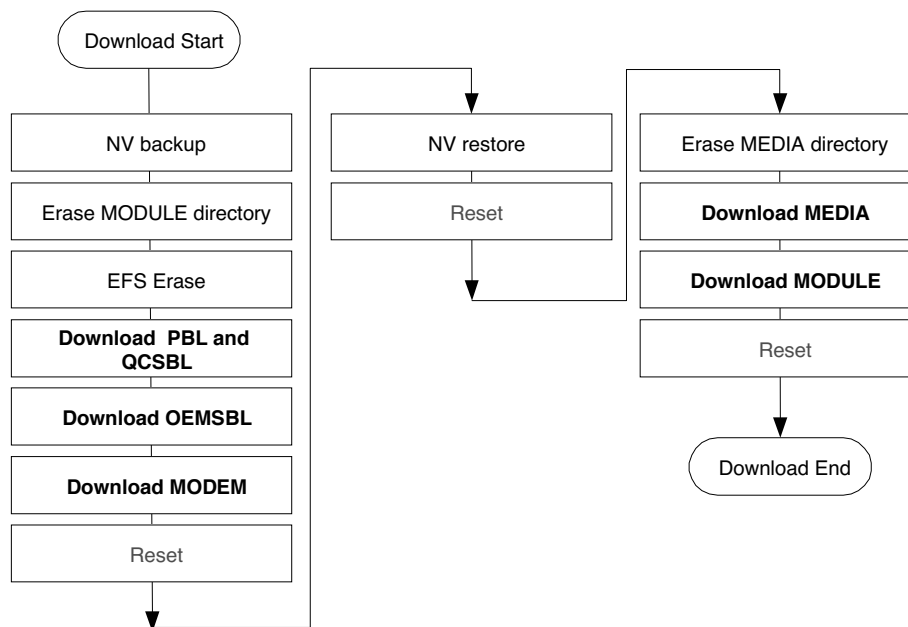


Click on the START button to start downloading.

Normally LGMDP will download all files that need downloading. To download selected image file only simply select the image file that user want to process downloading.

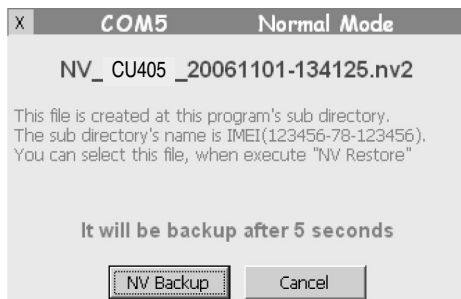
3) Downloading

The following flow chart is whole process for downloading images to the handset. You will see snapshots for each step in the succeeding slides.

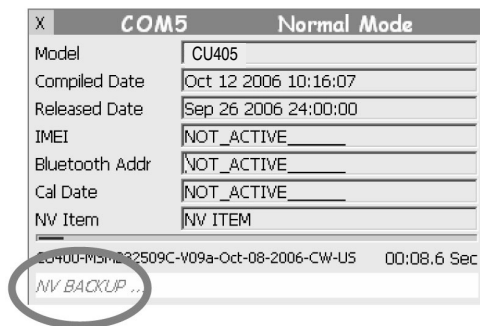


<Download process>

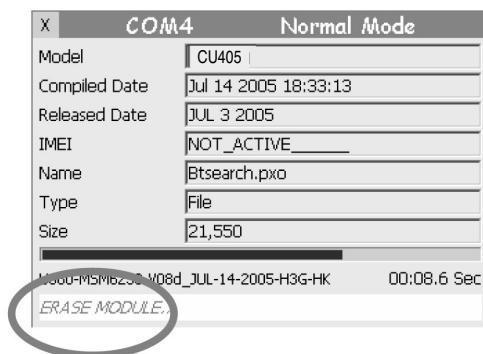
5. DOWNLOAD



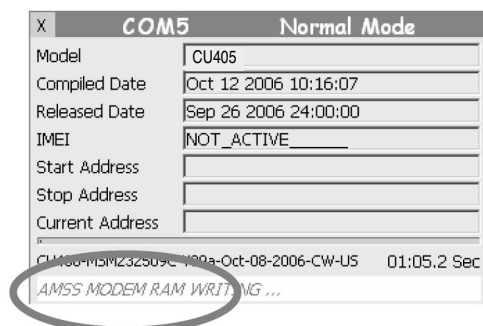
- This message box informs that a new file for NV backup will be created in the displayed file name in the LGMDP installation directory.



- Backing up NV data and backed up NV data will be stored in the LGMDP installation directory.



- Erasing the existing directories and files before the Module image is downloaded.

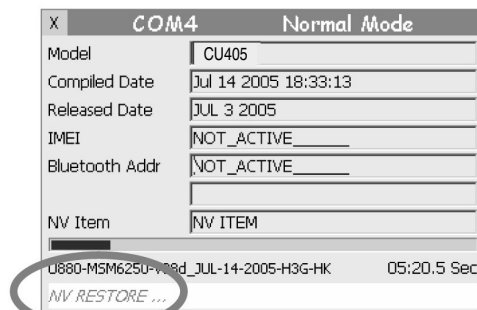


- Downloading the AMSS modem image

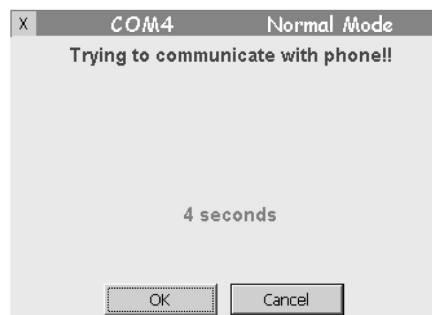
5. DOWNLOAD



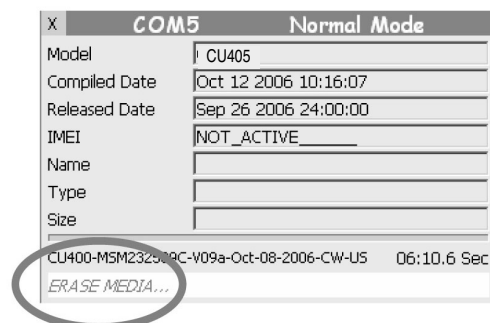
- Rebooting the handset and re-establishing the connection



- Restoring NV data which backed up in the Backing up process. User can also restore NV data using NV Default image selection.



- Rebooting the handset and re-establishing the connection



- Erasing the existing directories and files before downloading the selected Media image

5. DOWNLOAD

X	COM5	Normal Mode
Model	CU405	
Compiled Date	Oct 12 2006 10:16:07	
Released Date	Sep 26 2006 24:00:00	
IMEI	NOT_ACTIVE_____	
Name	LG_DM_DDF.xml	
Type	File	
Size	24,576/29,149	
CU405-MSM232509C-V09a-0ct-08-2006-CW-US 06:14.3 Sec		
MEDIA DOWNLOADING ...		

- Downloading Media image in progress

X	COM5	Normal Mode
Model	CU405	
Compiled Date	Oct 12 2006 10:16:07	
Released Date	Sep 26 2006 24:00:00	
IMEI	NOT_ACTIVE_____	
Name	Calculator.pxo	
Type	File	
Size	40,960/43,870	
CU405-MSM232509C-V09a-0ct-08-2006-CW-US 07:57.0 Sec		
MODULE DOWNLOADING ...		

- Downloading Module image in progress

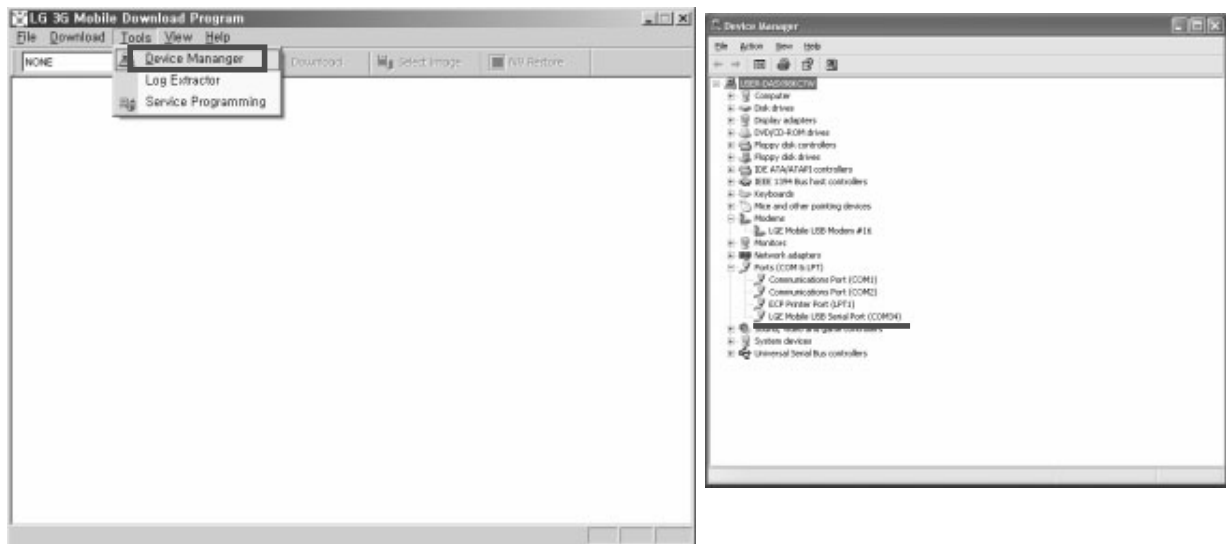
X	COM5	Download End
Model	CU405	
Compiled Date	Oct 12 2006 10:16:07	
Released Date	Sep 26 2006 24:00:00	
IMEI	NOT_ACTIVE_____	
Bluetooth Addr	NOT_ACTIVE_____	
Cal Date	NOT_ACTIVE_____	
Current Address		
CU405-MSM232509C-V09a-0ct-08-2006-CW-US 10:09.3 Sec		
Download Completed!		

- Downloading process has completed successfully

4) Tools

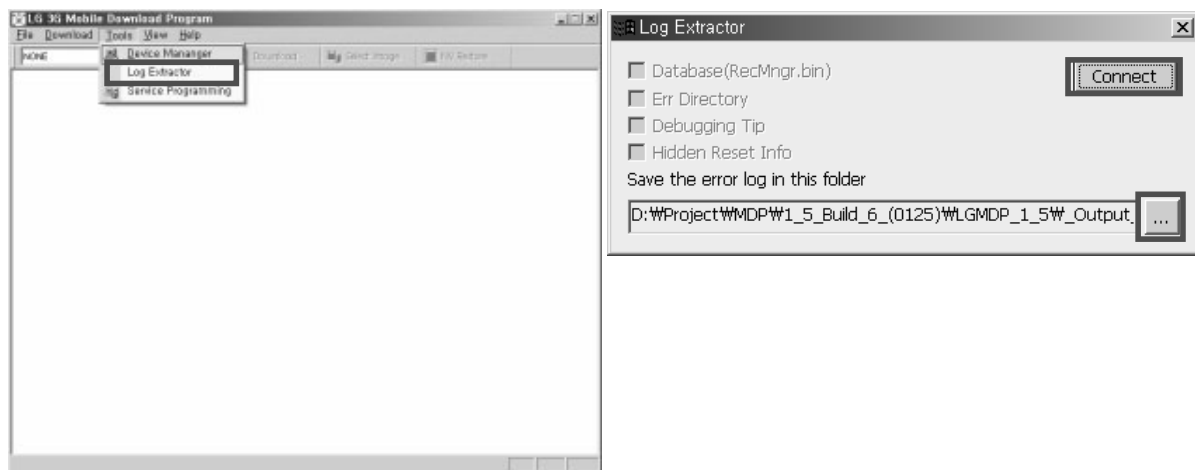
Device Manager allows to monitor current hardware that is installed on your PC.

Device Manager is designed to monitor USB connectivity and check where the COM has been installed . Select Device Manager from the Tools of the file menu.



5. DOWNLOAD

Log Extractor is designed to extract log information from handset and store log related files in the selected root path in PC. This function is very useful for debugging. Select Log Extractor from the Tools of the file menu, and connect the phone with LGMDP by clicking on the Connect button. When clicking on the Connect button, this checks if the appropriate files such as LFAPP/RecMngr.bin, err directory, Debugging_Tip.txt, or Hidden_info.bin are placed on the handset. If they are exist, then appropriate check boxes are checked accordingly. Select directory to store log files by clicking on the ... button.

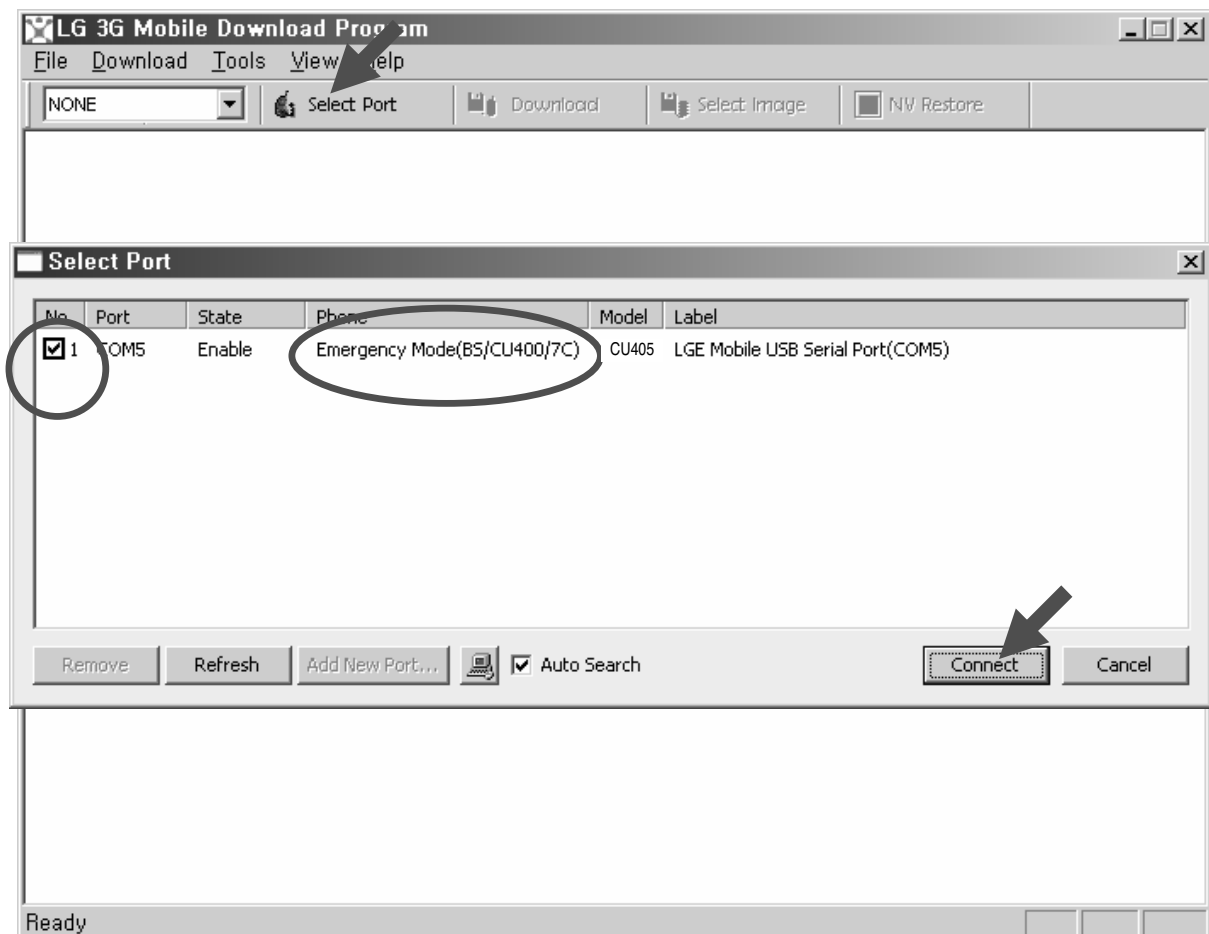


5.3 Troubleshooting download errors

1) When the phone does not work

→ Reboot the phone as the emergency mode (keep pressing “2” and “5” key while the phone is being booted). and then try to download the images again.

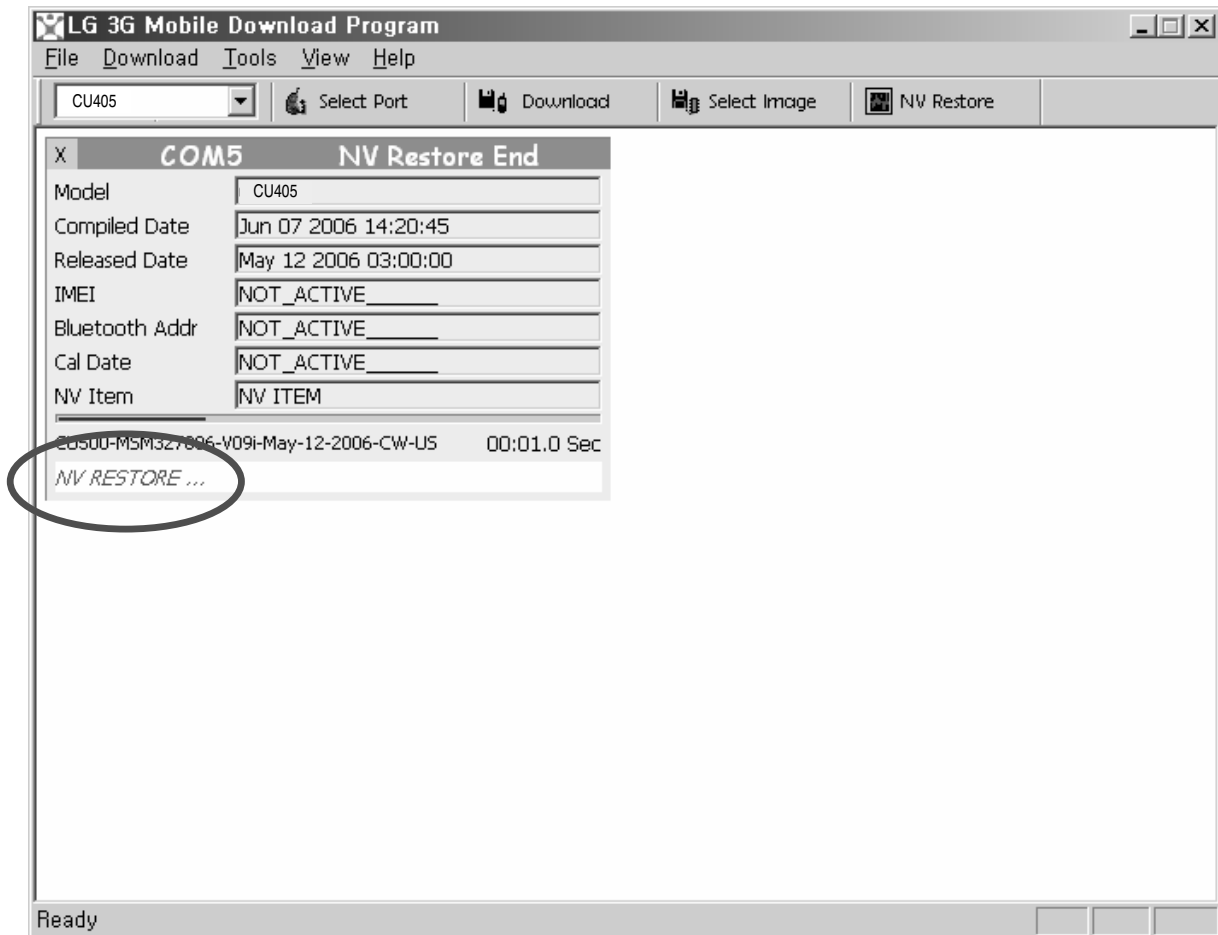
★ The phone supports a special mode named emergency mode. In this mode, minimum units for downloading is running so that users can download the images again in case of emergency situation. (AMSS Modem, Media and Module Images don't be running in this mode.)



5. DOWNLOAD

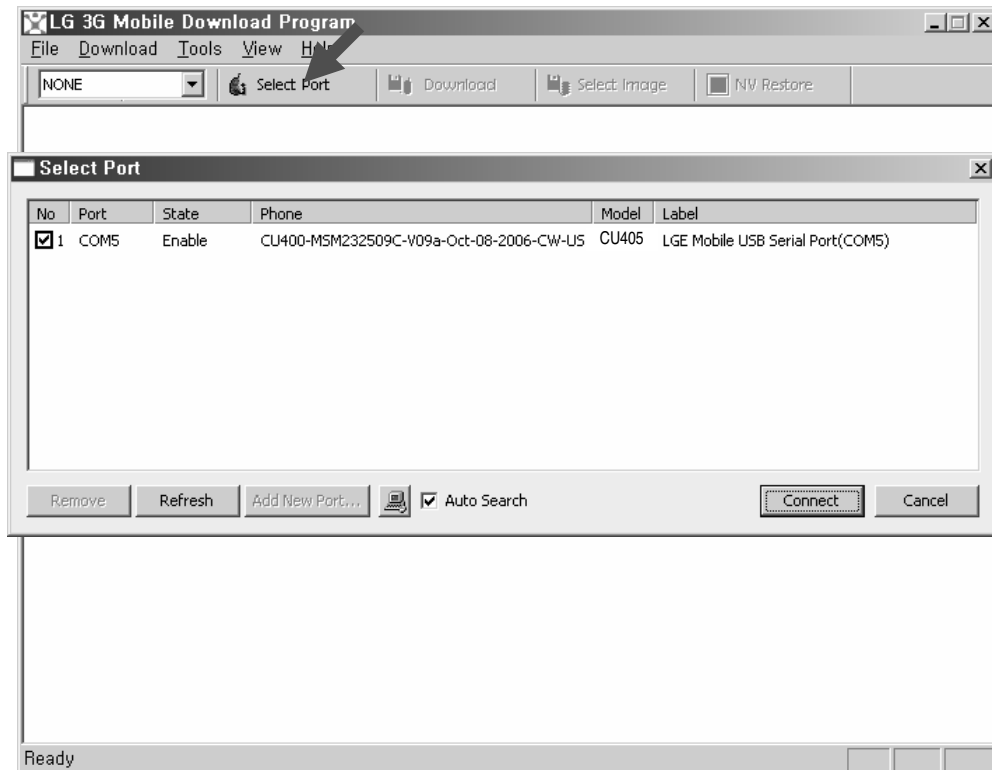
2) NV Restore error

When you meet the “NV Restore error”,

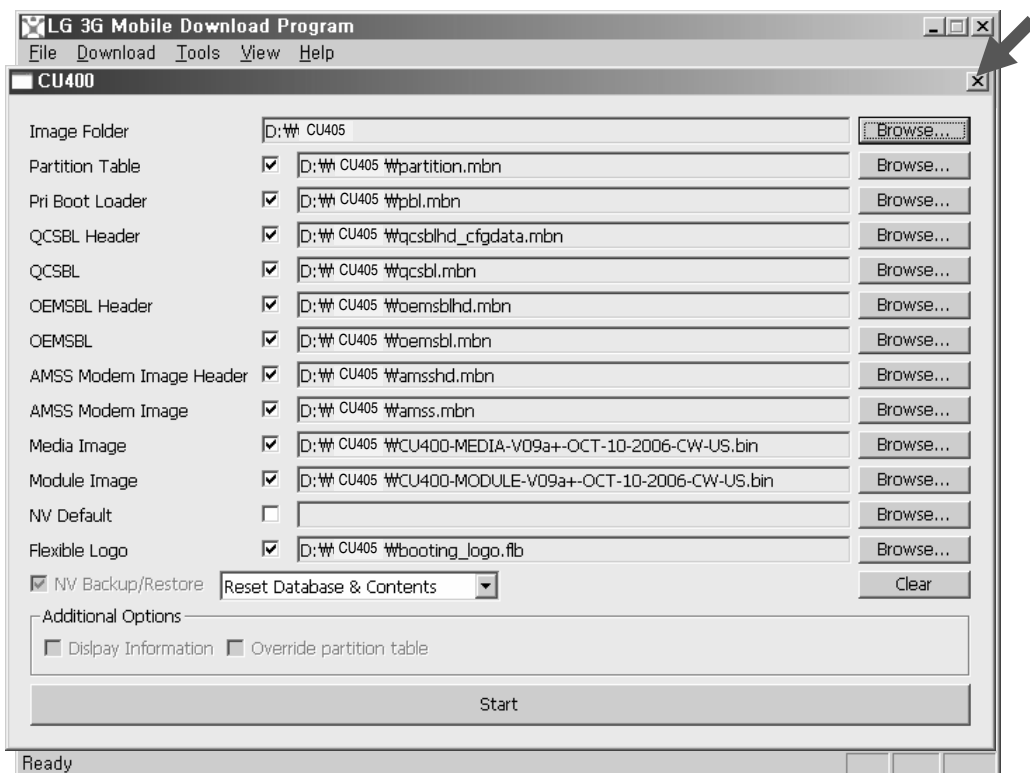


5. DOWNLOAD

→ Connect to the phone.



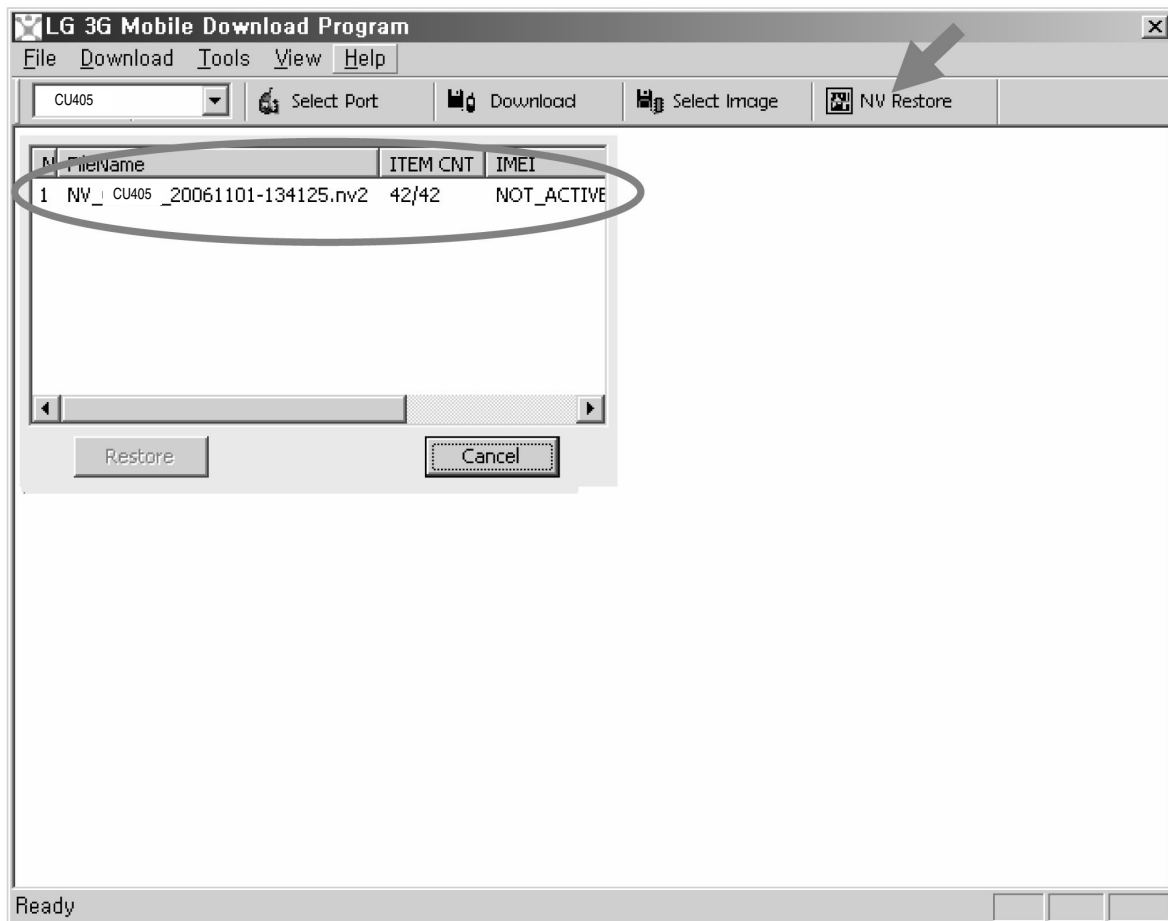
→ Click on 'Cancel'.



5. DOWNLOAD

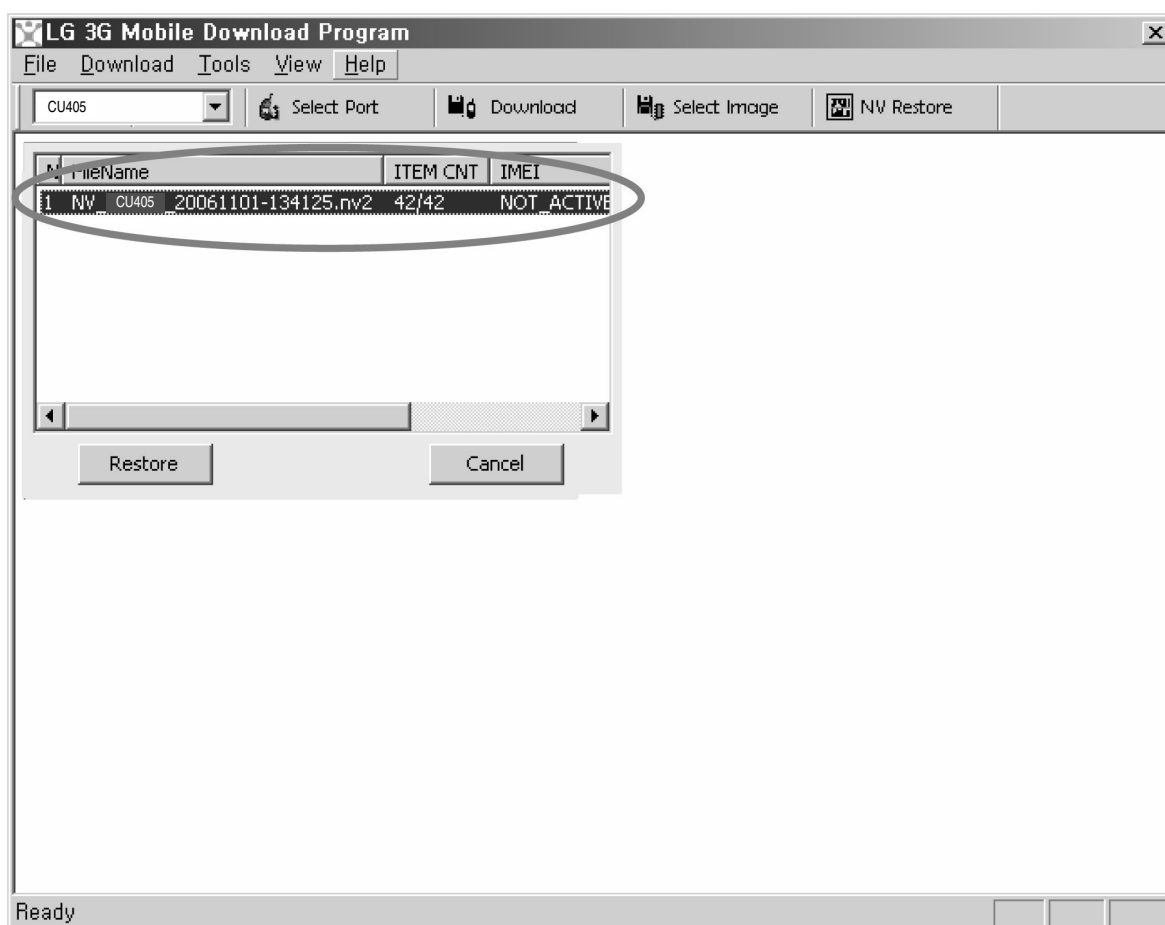
→ Click on 'NV Restore' then several NV Backup files(*.nv2) are shown.

★ The files are saved every NV Backup. The name is based on the time when NV Backup is done.)



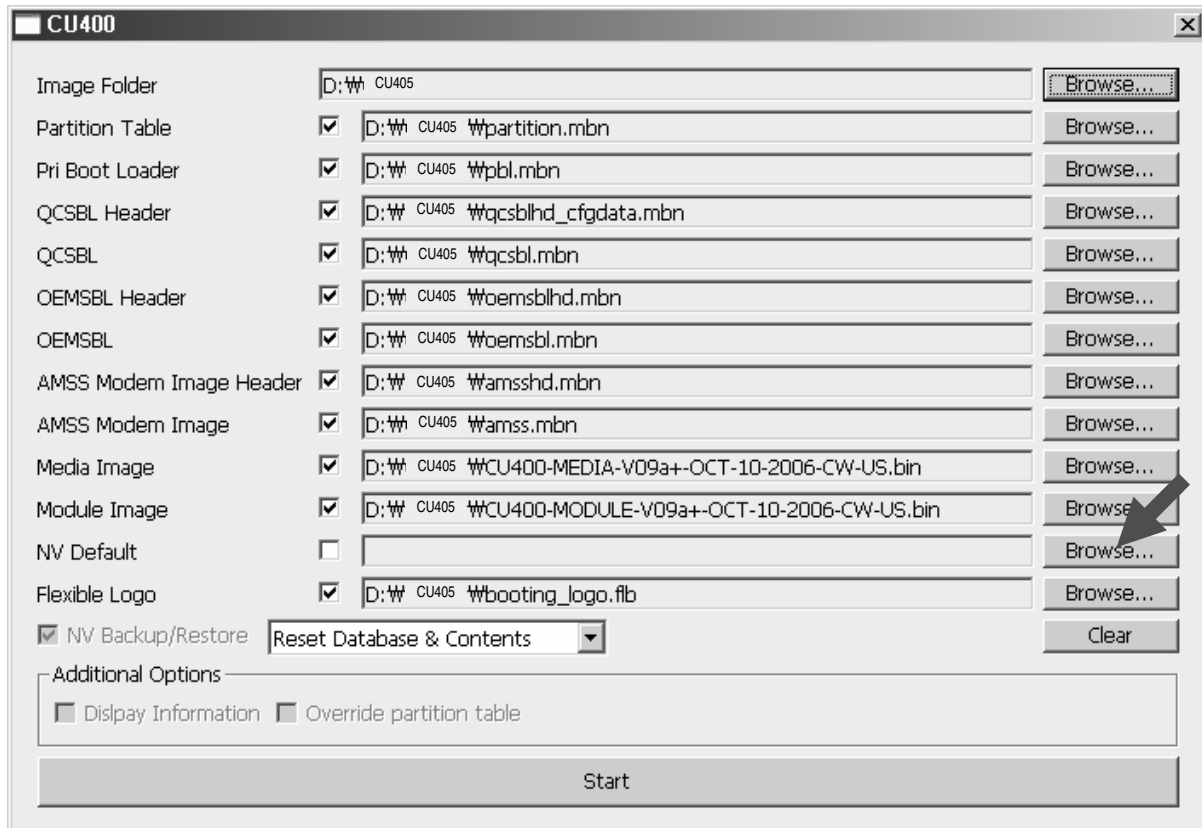
5. DOWNLOAD

→ Select the proper file and click on 'Restore'.



5. DOWNLOAD

→ If you want image download and NV backup file restore at once, use the NV Default function.



CU400

Image Folder	<input type="checkbox"/>	D:\CU405	Browse...
Partition Table	<input checked="" type="checkbox"/>	D:\CU405\partition.mbn	Browse...
Pri Boot Loader	<input checked="" type="checkbox"/>	D:\CU405\pbl.mbn	Browse...
QCSBL Header	<input checked="" type="checkbox"/>	D:\CU405\qcsblhd_cfgdata.mbn	Browse...
QCSBL	<input checked="" type="checkbox"/>	D:\CU405\qcsbl.mbn	Browse...
OEMSBL Header	<input checked="" type="checkbox"/>	D:\CU405\oemsblhd.mbn	Browse...
OEMSBL	<input checked="" type="checkbox"/>	D:\CU405\oemsbl.mbn	Browse...
AMSS Modem Image Header	<input checked="" type="checkbox"/>	D:\CU405\amsshd.mbn	Browse...
AMSS Modem Image	<input checked="" type="checkbox"/>	D:\CU405\amss.mbn	Browse...
Media Image	<input checked="" type="checkbox"/>	D:\CU405\CU400-MEDIA-V09a+-OCT-10-2006-CW-US.bin	Browse...
Module Image	<input checked="" type="checkbox"/>	D:\CU405\CU400-MODULE-V09a+-OCT-10-2006-CW-US.bin	Browse...
NV Default	<input type="checkbox"/>		Browse...
Flexible Logo	<input checked="" type="checkbox"/>	D:\CU405\booting_logo.flb	Browse...
<input checked="" type="checkbox"/> NV Backup/Restore		Reset Database & Contents	Clear
Additional Options			
<input type="checkbox"/> Display Information <input type="checkbox"/> Override partition table			
Start			

5. DOWNLOAD

The screenshot shows the CU405 software interface for downloading components. The window title is "CU405". The interface is divided into several sections:

- Image Folder:** D:\CU405
- Partition Table:** ☒ D:\CU405\partition.mbn
- Pri Boot Loader:** ☒ D:\CU405\pbl.mbn
- QCSBL Header:** ☒ D:\CU405\qcsblhd_cfgdata.mbn
- QCSBL:** ☒ D:\CU405\qcsbl.mbn
- OEMSBL Header:** ☒ D:\CU405\oemsblhd.mbn
- OEMSBL:** ☒ D:\CU405\oemsbl.mbn
- AMSS Modem Image Header:** ☒ D:\CU405\amsshd.mbn
- AMSS Modem Image:** ☒ D:\CU405\amss.mbn
- Media Image:** ☒ D:\CU400-MEDIA-V09a+-OCT-10-2006-CW-US.bin
- Module Image:** ☒ D:\CU400-MODULE-V09a+-OCT-10-2006-CW-US.bin
- NV Default:** ☒ D:\Wgtools\LGMDP_1_5\Output\NOT_ACTIVE_COM_5_
- Flexible Logo:** ☒ D:\WCU400\booting_logo.flb

Below the list, there is a checkbox for "NV Backup/Restore" and a dropdown menu set to "Reset Database & Contents". A "Clear" button is also present.

Additional Options:

- ☐ Display Information
- ☐ Override partition table

A large "Start" button is at the bottom, with an arrow pointing to it.

5. DOWNLOAD

5.4 Caution

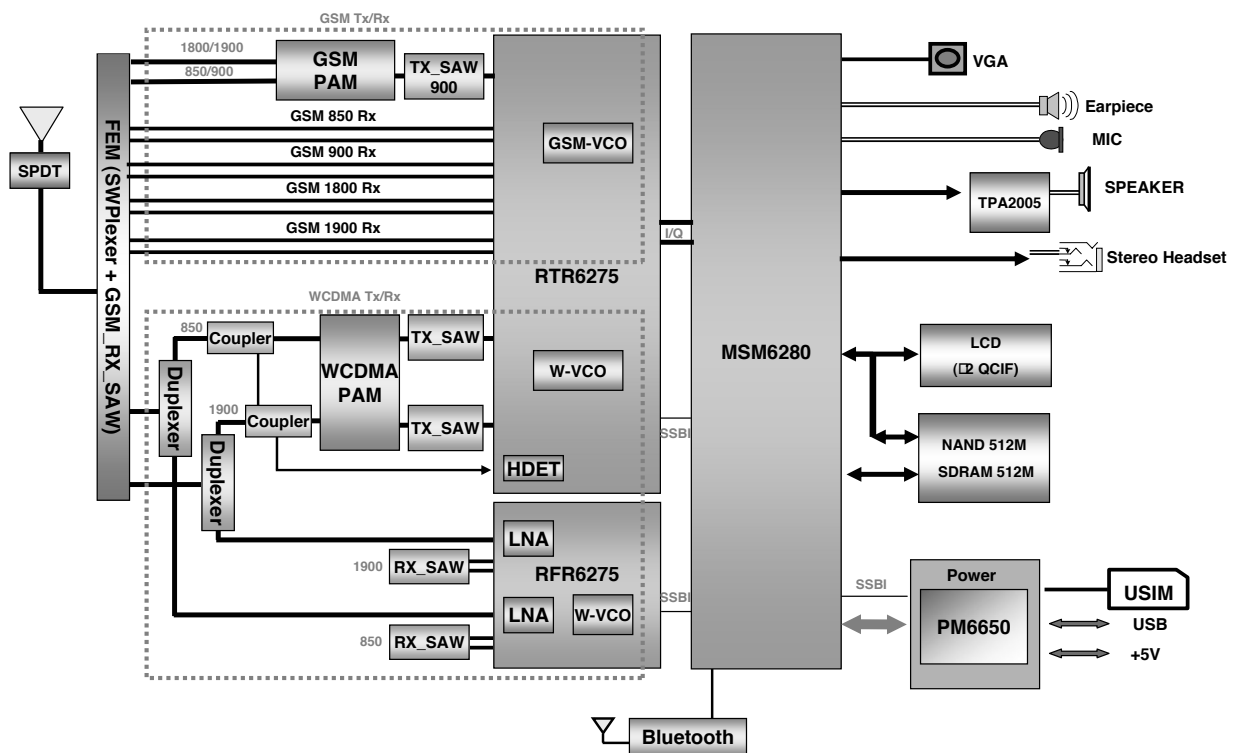
- 1) Multi-downloading using the USB hub is not recommendable.
- 2) If you see the message 'cal mode' after 'completing download', you must do NV restore and image (media and module) download.
- 3) In emergency mode, you can not download the media and module image. So if you want download media and module image, connect the phone normal mode after emergency mode download, and then you can do it.
- 4) The NV data saved at LGMDP folder like this.



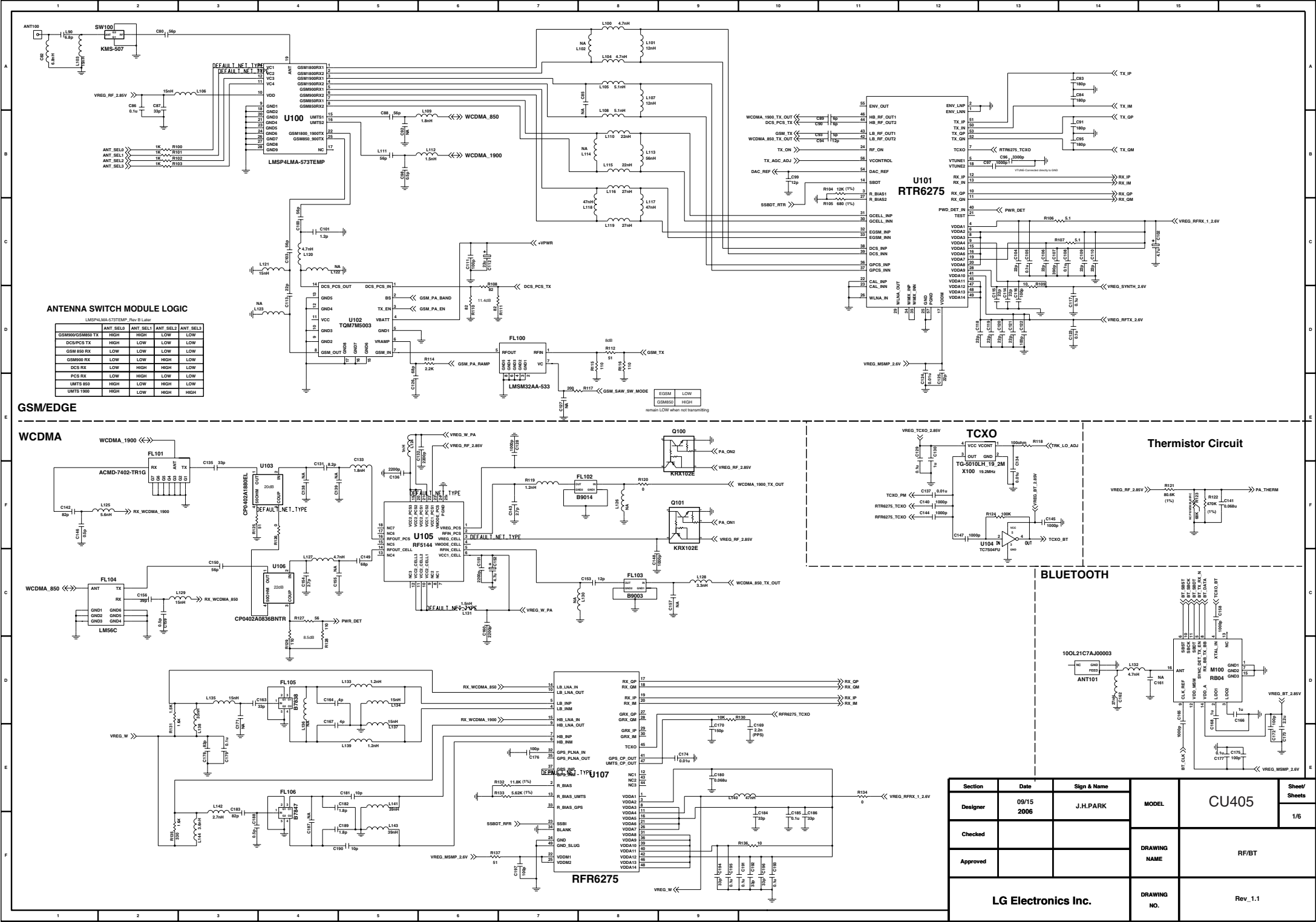
- 5) Recommended that the Module and Media Image have to be downloaded at the same time.
- 6) Erase EFS option will erase everything (media, module, nv items, and user data) in the EFS area.

6. BLOCK DIAGRAM

6.1 CU405 Block Diagram



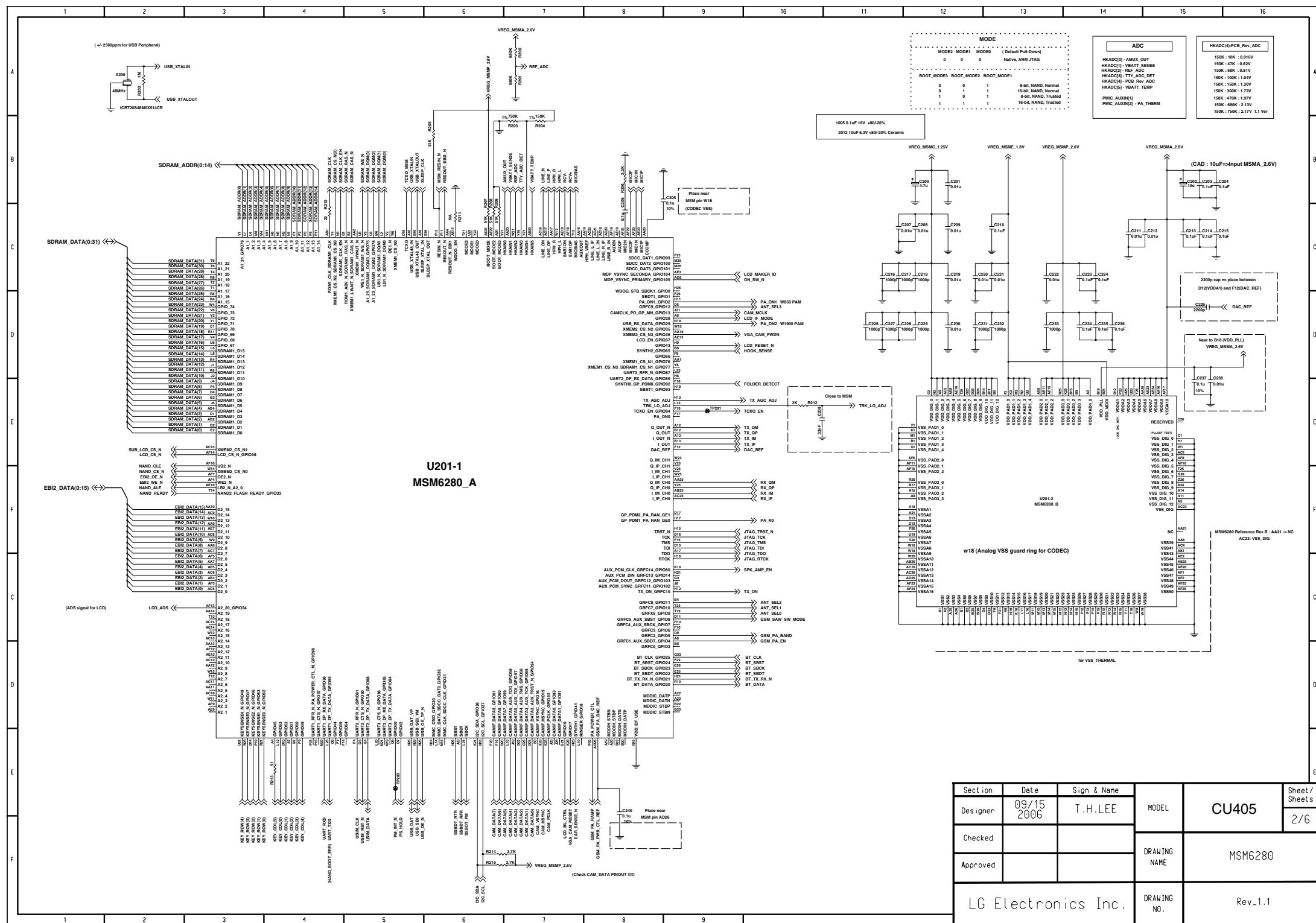
7. CIRCUIT DIAGRAM



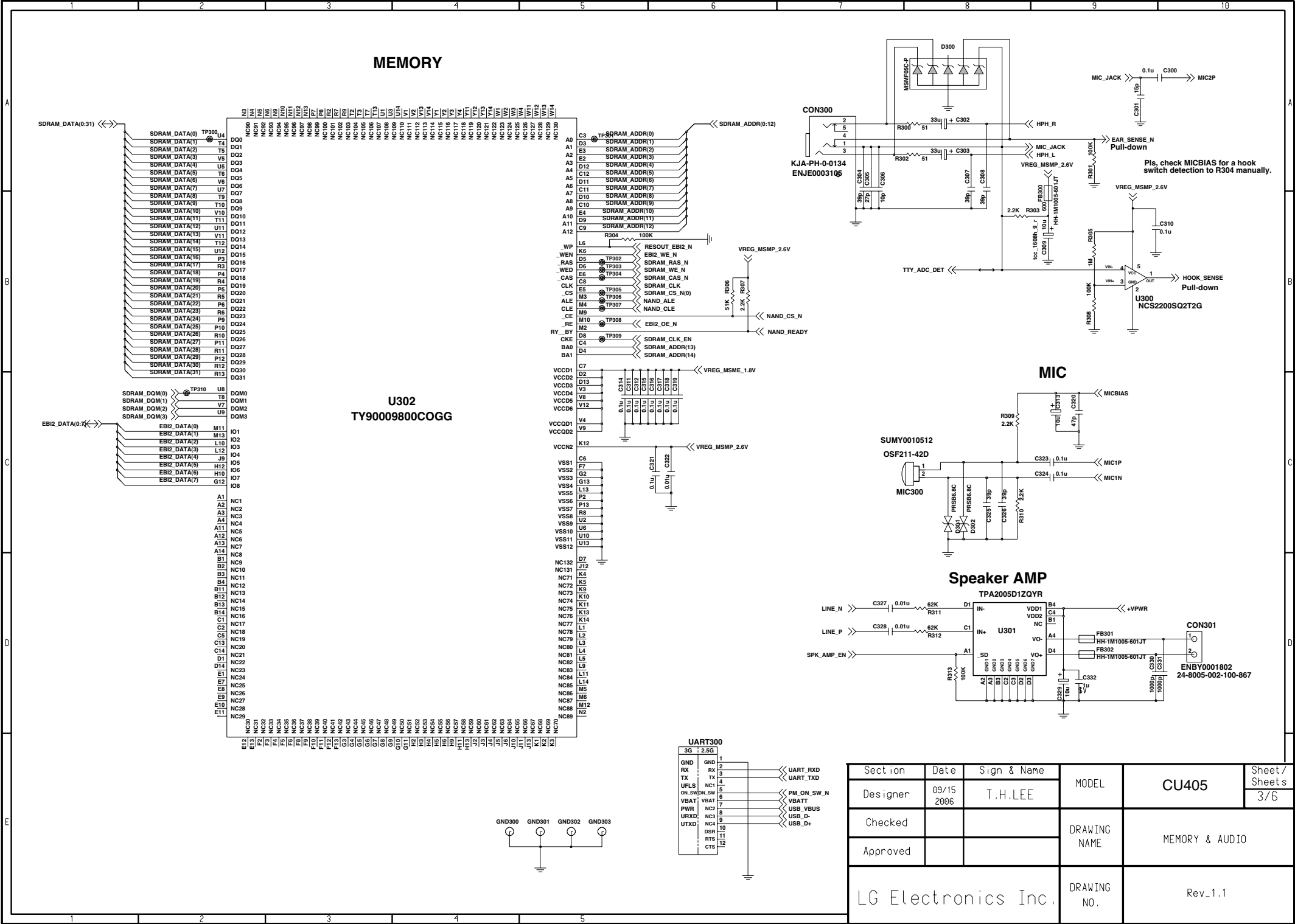
LG04

LG Electronics Inc.

7. CIRCUIT DIAGRAM



7. CIRCUIT DIAGRAM



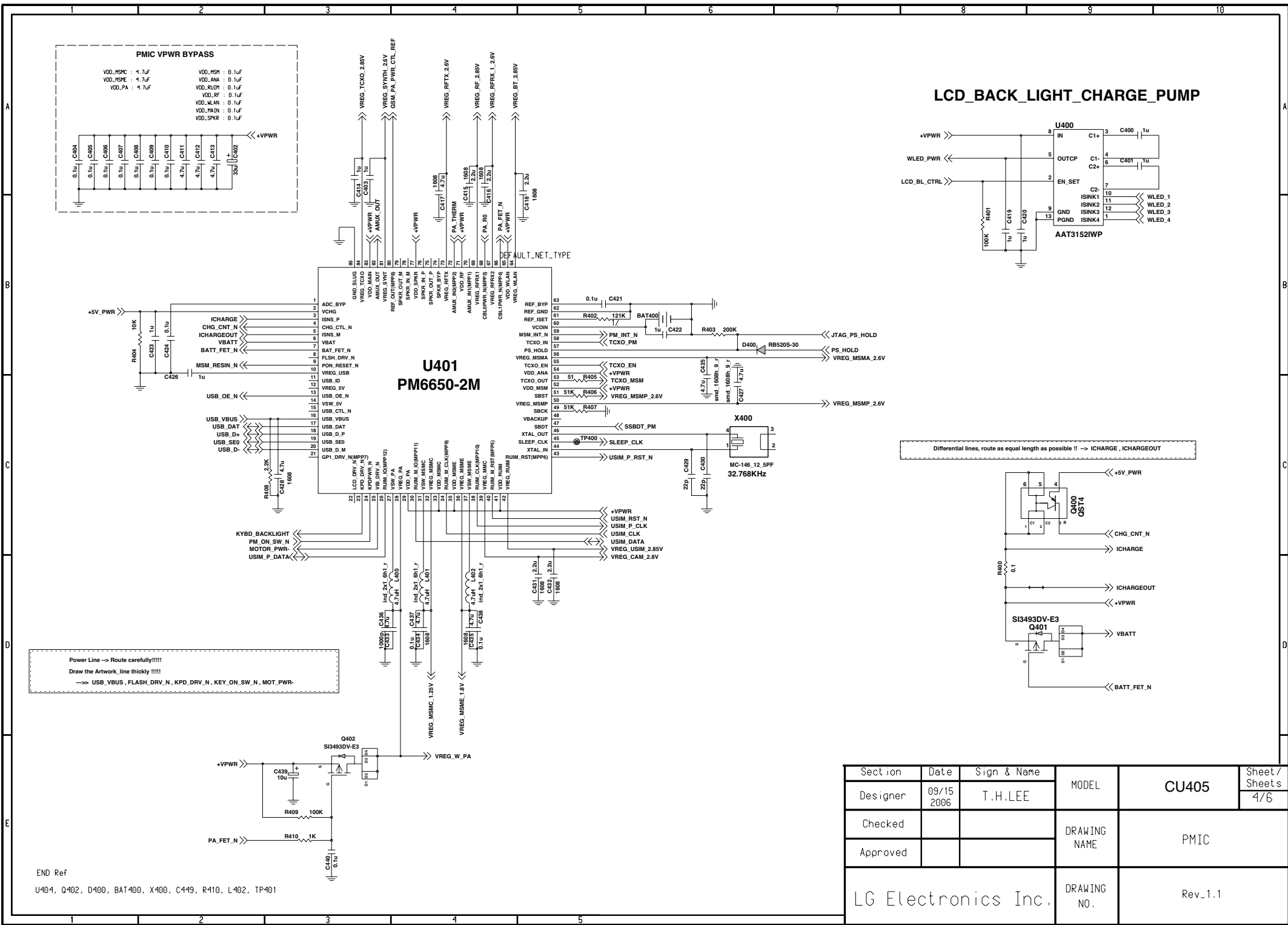
LGIC(42)-A-5505-10:01

LG Electronics Inc.

Section	Date	Sign & Name	MODEL	CU405	Sheet/ Sheets
Designer	09/15 2006	T.H.LEE			3/6
Checked			DRAWING NAME	MEMORY & AUDIO	
Approved			DRAWING NO.	Rev_1.1	

LG Electronics Inc.

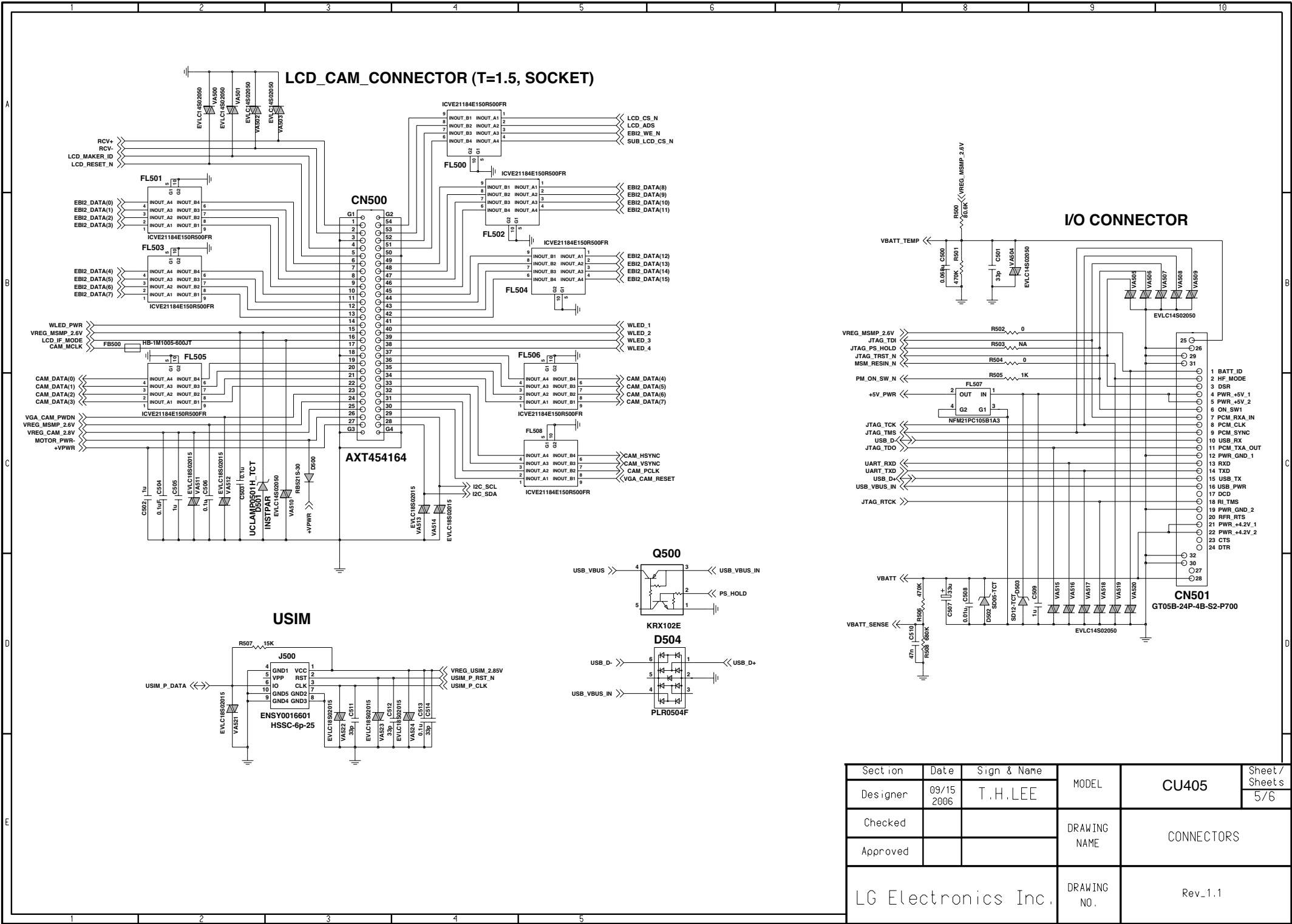
7. CIRCUIT DIAGRAM



LGIC(42)-A-5505-10:01

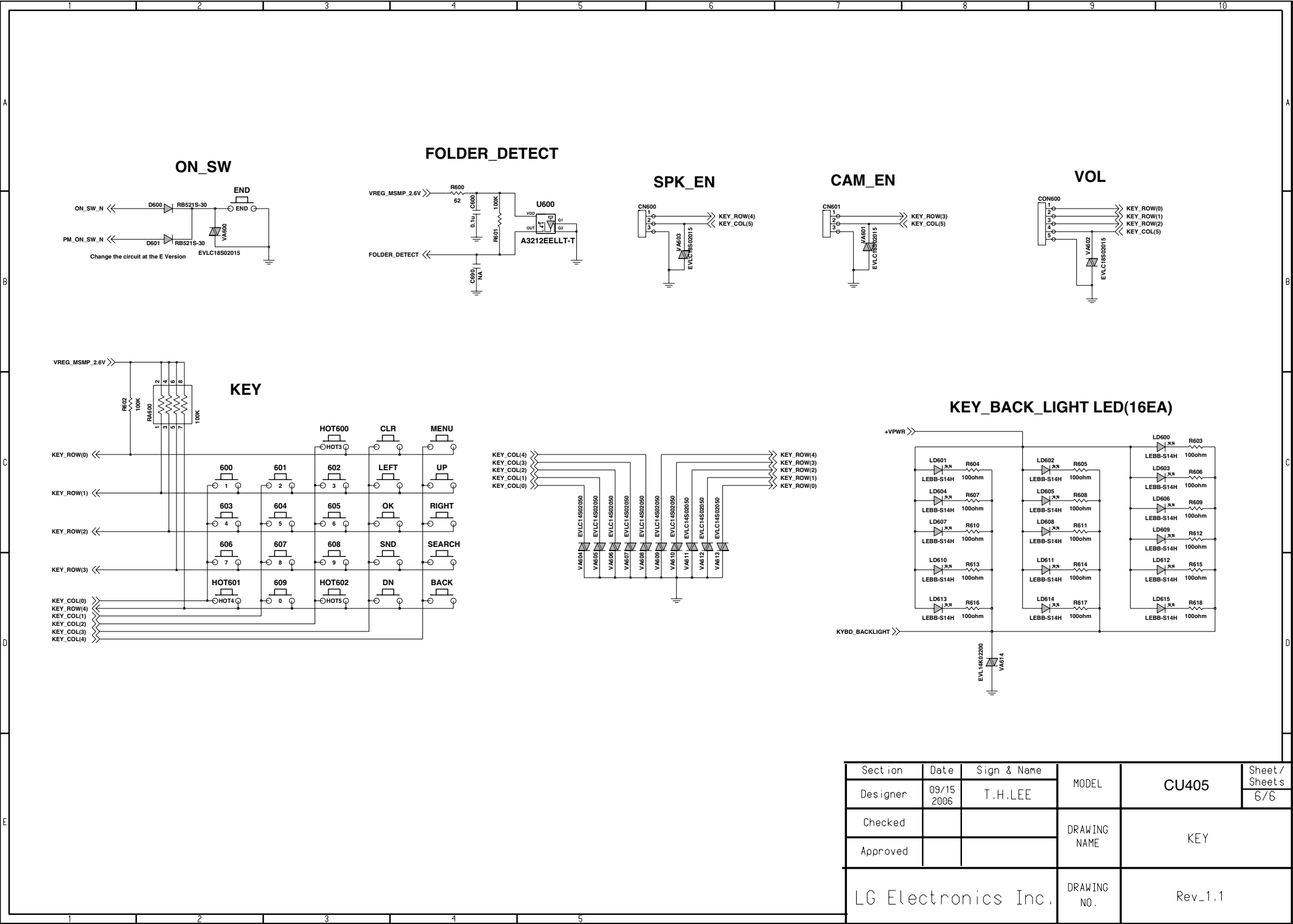
LG Electronics Inc.

7. CIRCUIT DIAGRAM



Section	Date	Sign & Name	MODEL	CU405	Sheet / Sheets
Designer	09/15/2006	T.H.LEE			5/6
Checked			DRAWING NAME	CONNECTORS	
Approved			DRAWING NO.	Rev_1.1	

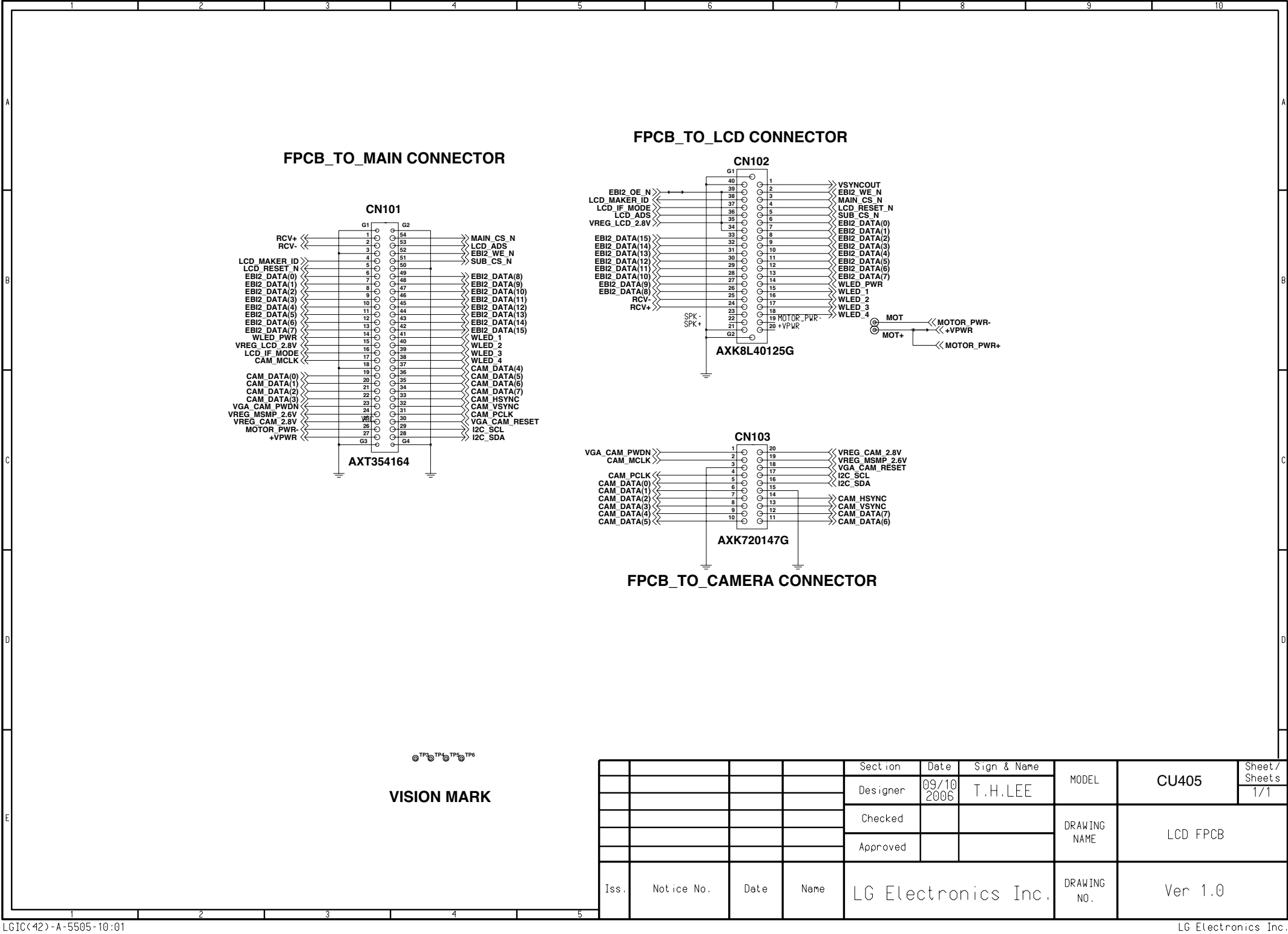
7. CIRCUIT DIAGRAM



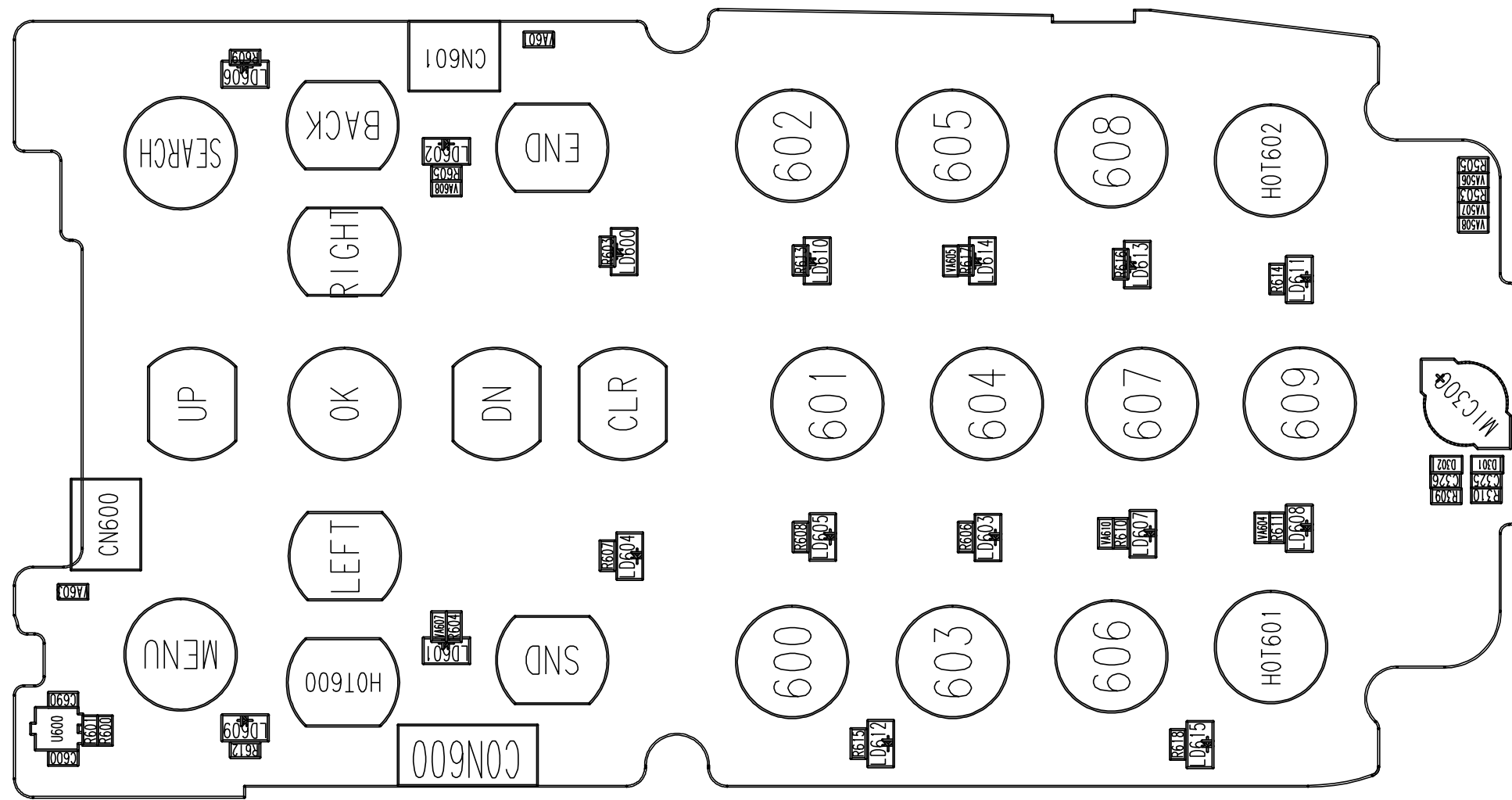
LGIC(42)-A-5505-10:01

LG Electronics Inc.

7. CIRCUIT DIAGRAM

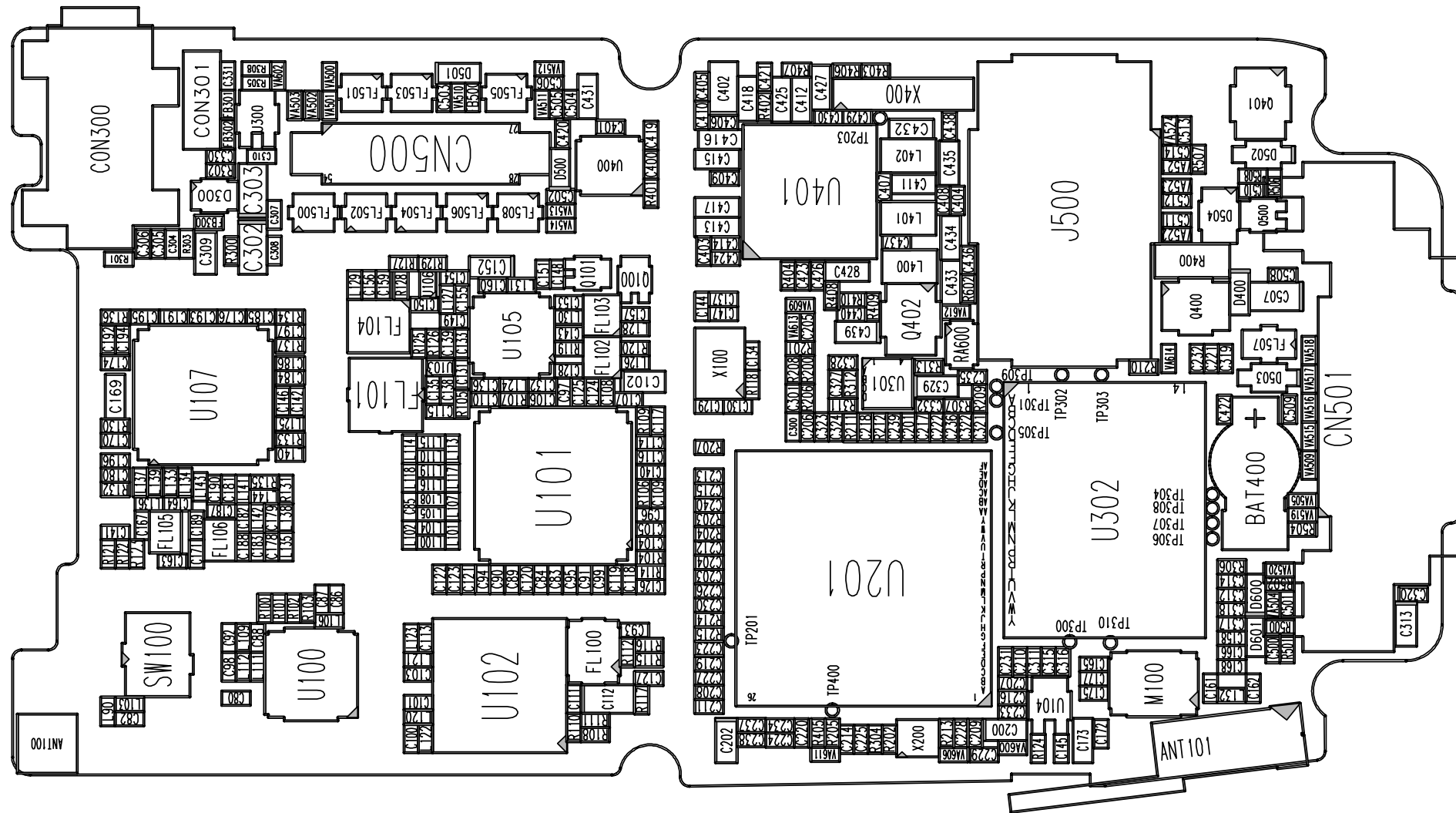


8. PCB LAYOUT



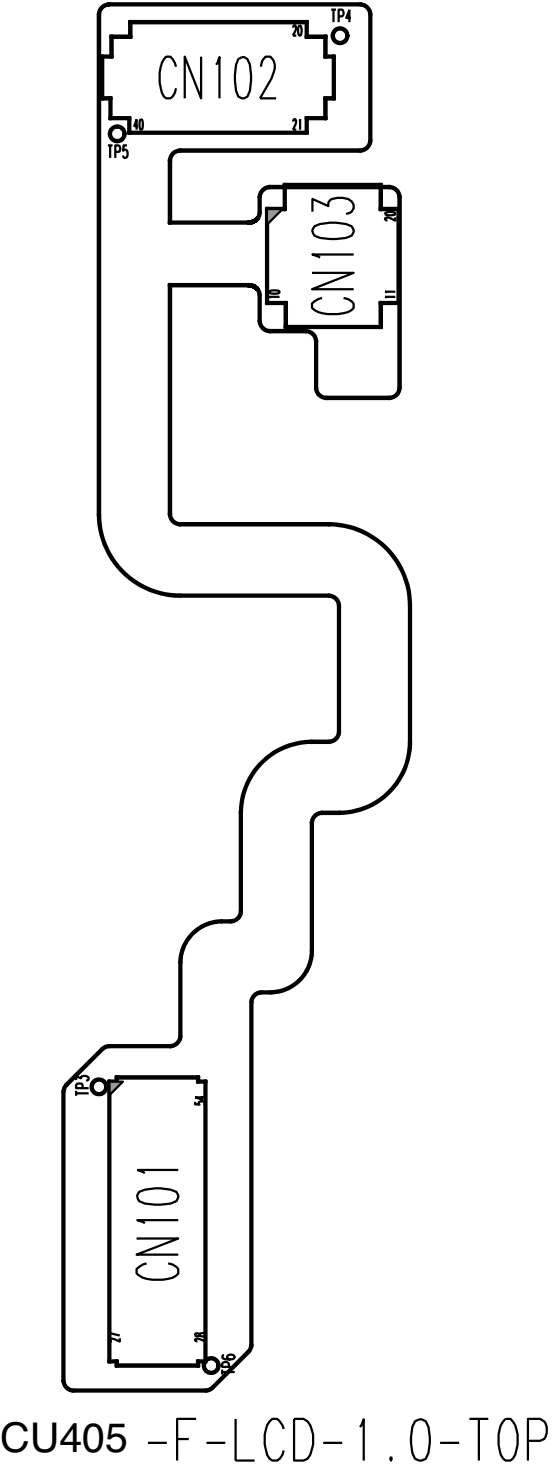
SPFY0132301-1.1-TOP

8. PCB LAYOUT

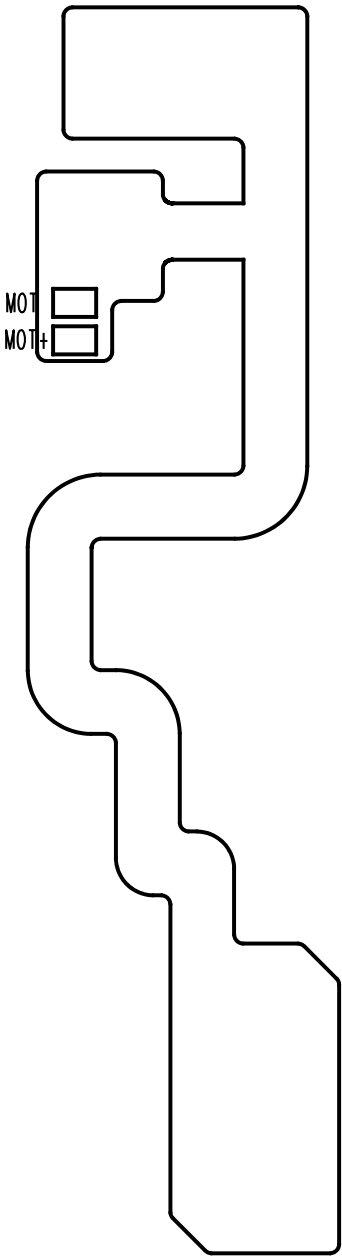


SPFY0132301-1.1-BOTTOM

8. PCB LAYOUT



8. PCB LAYOUT

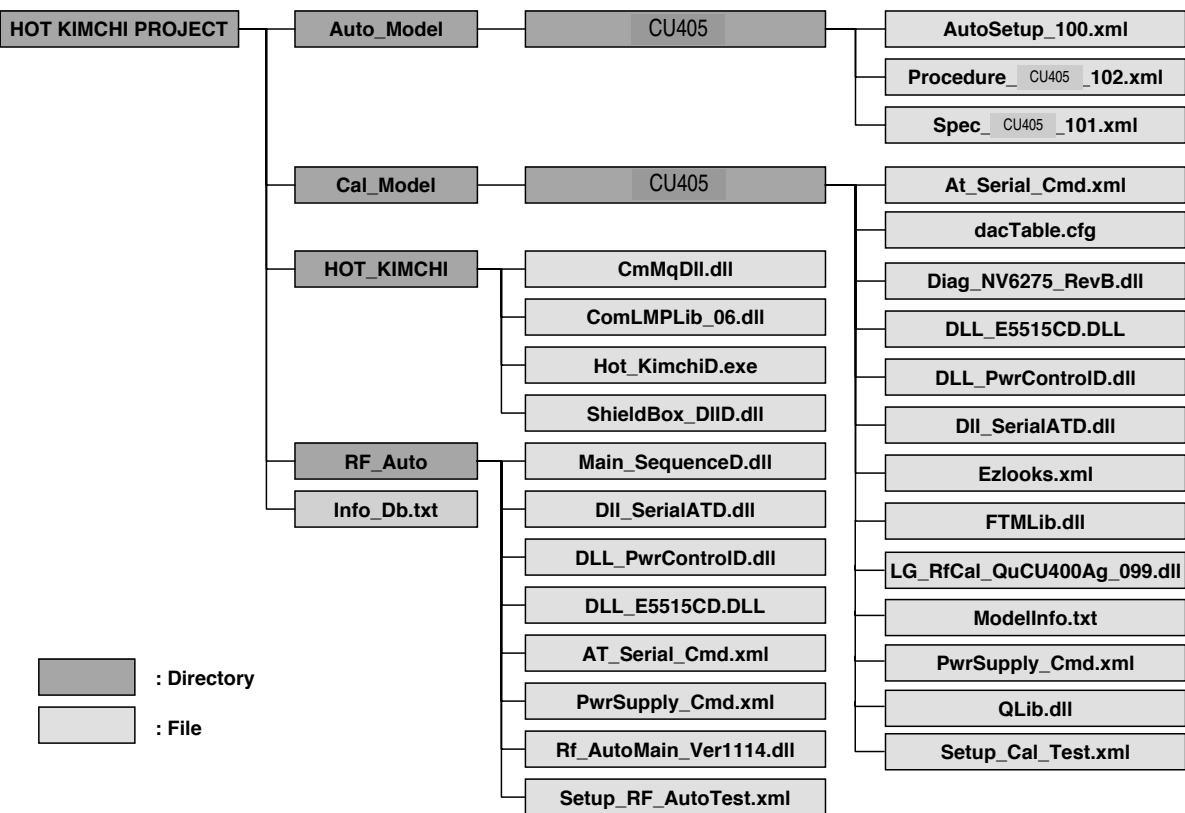


CU405 -F-LCD-1.0-BOTTOM

9. Calibration & RF Auto Test Program

9.1 Configuration of HOT KIMCHI

9.1.1 Configuration of directory



9. Calibration & RF Auto Test Program

9.1.2 Setup file (Info_Db.txt)

/*cal*/[Default]=[CU405]

① ② ③
/*cal*/[CU405]=[..\Cal Mode\CU405\LG_RfCal_Qu_CU405_Ag_099.dll]

④
[ezlooks]=[off]

[batcal]=[off]

[svc]=[off]

[standalone]=[off]

[tescom]=[off]

⑤
[process]=[cal]

← 'on' or 'off'. (use only lower case)

← 'auto' or 'cal'. (use only lower case)

1: Indication of 'cal process'

2: Model name which is displayed on Hot Kimchi program

3: Relative path of Main Sequence dll file from Hot_KimchiD.exe

4: You can change this as 'on' or 'off'(should be in lower case; on, off)

5: You can change this as 'auto' or 'cal'(should be in lower case; on, off)

6: Relative path of auto model procedure, spec, setting file from Hot_KimchiD.exe

9.1.3 Items of setup file

[ezlooks] => The yes or no for using ezlooks

Domestic: on, Overseas: off

[batcal] => The yes or no for using battery calibration

[svc] => The yes or no for using HOT KIMCHI at service center

Domestic: off, Service Center: on

[standalone] => Overseas factory or Service Center: on, Domestic: off

[tescom] => The yes or no for using TESCOM shield box

[process] => selection of the process (auto or cal)

[CU405] => procedure, spec., setup file name (only for auto)

9. Calibration & RF Auto Test Program

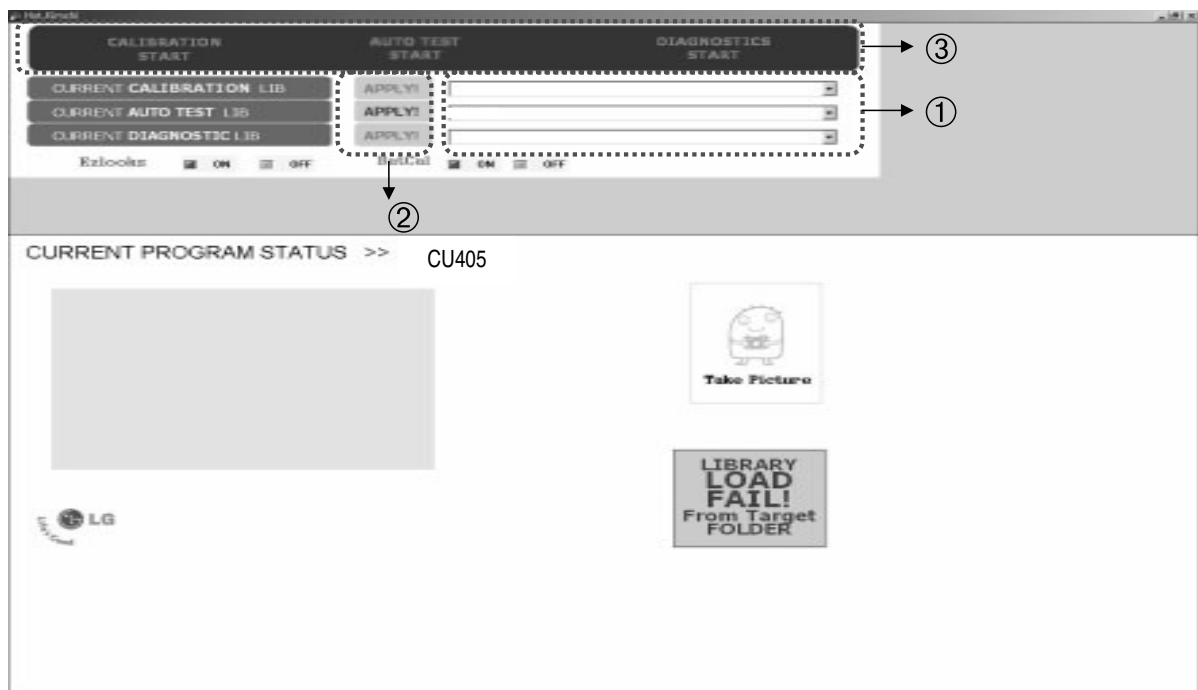
9.1.4 Example for setup file

CAL Process	
Ex1) Service center	[ezlooks]=[off] [batcal]=[off] [svc]=[on] [standalone]=[off] [tescom]=[off] [process]=[cal]
Ex2) Overseas factory or Repair	[ezlooks]=[off] [batcal]=[on] [svc]=[off] [standalone]=[on] [tescom]=[off] [process]=[cal]
Ex3) Domestic factory	[ezlooks]=[on] [batcal]=[on] [svc]=[off] [standalone]=[off] [tescom]=[off] [process]=[cal]

In case of using Tescom S/B, set [tescom]=[on].

9. Calibration & RF Auto Test Program

9.2 How to use HOT KIMCHI

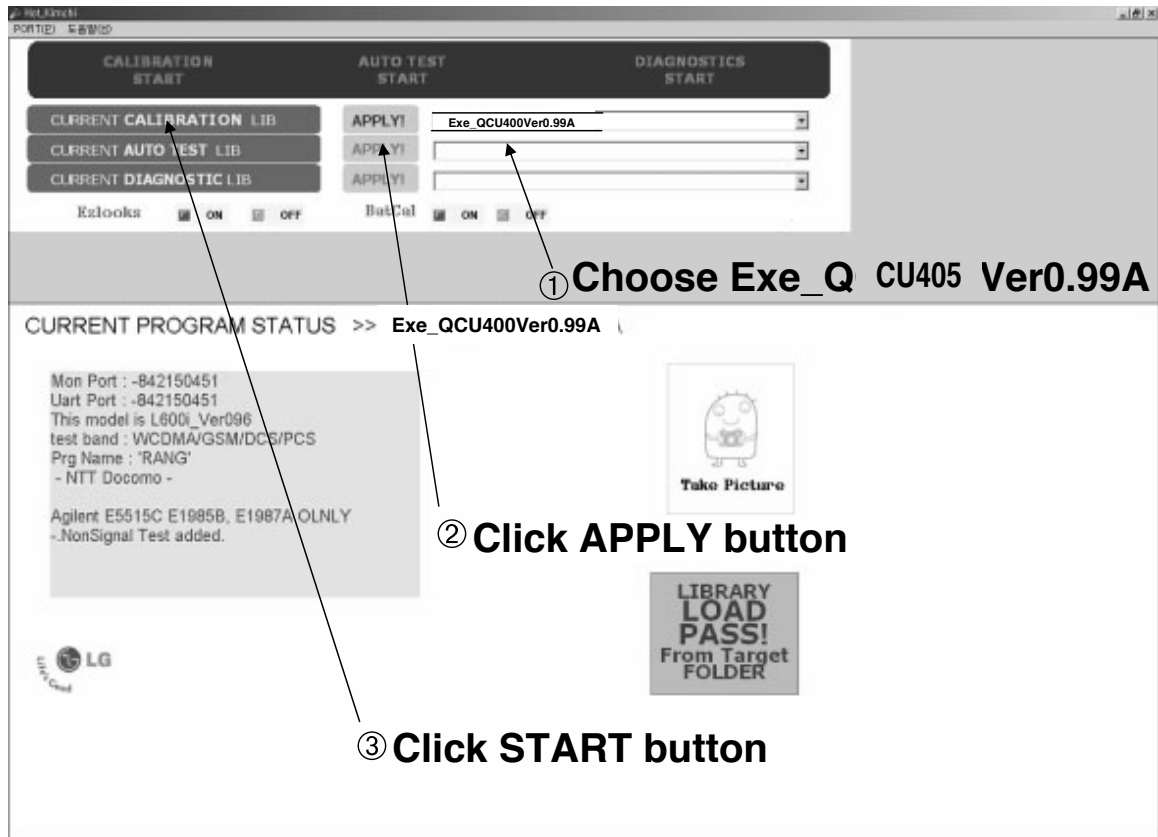


* Flow

1. Select the model name which you want
2. Click APPLY button to load the 'cal'
3. Click START button to run the procedure which you want

9. Calibration & RF Auto Test Program

9.3 Example for using HOT KIMCHI



- CU405_Ver0.99A Calibration -

9. Calibration & RF Auto Test Program

9.3.1 Example for Calibration



Click START

10. EXPLODED VIEW & REPLACEMENT PART LIST

10.1 EXPLODED VIEW

64	COVER,REAR	1	MCJN0065401		51	SPRING,LOCKER	1	MSDC0009201		50	CAP,RECEPTACLE	1	MCCE0031801	
65	TAPE,PROTECTION(LCD MAIN)	1	MTAB0153101		52	TAPE, SHIELD REAR-2	1	MTAZ0149601		49	LABEL, A/S	1	MLAB0000601	
66	SCREW,MACHINE	10	GMEY0011201		53	LOCKER,BATTERY	1	MLEA0034701		48	ANT, CON	1	MCIA0018501	
67	PAD,FPCB(LOWER)	1	MPBZ0175601		54	CAP, SCREW REAR(RIGHT)	1	MCCH0091301		47	BUTTON, VOLUME	1	MBJN0009501	
68	TAPE,PROTECTION IO	1	MTAB0159401		55	TAPE,DECO REAR	1	MTAA0124501		46	TAPE, SHIELD REAR-1	1	MBJN0009501	
69	PAD,FPCB	1	MPBF0018601		56	CAP,MOBILE S/W	1	MCCF0038301		45	GASKET,SHIELD TAPE(BTOB)	1	MGAD0128201	
70	INSULATOR,REAR-3	1	MIDZ0122201		57	DECO,REAR	1	MDAK0011801		44	ANTENNA	1	SNGF0019801	
71	FILTER,RECEIVER	1	MFBB0018101		58	CAP, SCREW REAR(LEFT)	1	MCCH0095601		43	BUTTON,SPEAKER	1	MBJZ0007901	
72	INSULATOR,REAR-1	1	MIDZ0116301		59	BATTERY(CELL)	1	SBPL0085401		42	FILTER, SPEAKER	1	MFBC0026001	
73	PAD,SPEAKER BRACKET	1	MPBN0037101		60	COVER,BATTERY	1	MCJA0035401		41	CAP,EARJACK PHONE	1	MCCC0038901	
74	GASKET SHIELD FOAM LOWER	1	MGAD0144001		61	HINGE	1	MHFD0014001		40	SPEAKER	1	SUSY0024301	
					62	TAPE,DECO UPPER TOP	1	MTAZ0149301		39	BRACKET,SPEAKER	1	MBFK0002601	
					63	PAD, LCD(SUB)	1	MPBQ0029701		38	PCB ASSY, MAIN	1	SAFF0091405	

The diagram illustrates the exploded view of a mobile phone, showing the relationship between various components. Key parts include the rear cover (64), front cover (31), and internal PCB assembly (38). The diagram uses numbered callouts (1-74) to identify specific parts, which are detailed in the replacement part list. The layout shows the phone's internal structure, including the battery (59), camera (21), and various connectors and filters.

37	DOME ASSY, METAL	1	ADCA0057601	
36	KEYPAD	1	MKAZ0037301	
35	FILTER,MIC	1	MFBD0018301	
34	BUMPER	1	MBHY0020001	
33	BRACKET, HINGE	1	MBFE0001301	
32	STOPPER,HINGE	1	MSGB0016001	
31	COVER, FRONT	1	MCJK0062301	
30	TAPE,DECO HINGE	1	MTAA0124201	
29	DECO,HINGE	1	MDAJ0011101	
28	DECO,RECEIVER	1	MDAH0019401	
27	TAPE, DECO RECEIVER	1	MTAA0124401	
26	WINDOW,LCD(MAIN)	1	MWAC0078101	
25	TAPE,WINDOW LCD MAIN	1	MTAD0058401	
24	COVER,FOLDER(LOWER)	1	MCJH0036101	
23	RECEIVER	1	SURY0011701	
22	TAPE,PROTECTION UPPER	1	MTAB0166501	
21	PAD,CAMERA	1	MPBT0039201	
20	MAGNET	1	MMAA0007601	
19	MOTOR	1	SJMY0006503	
18	LCD MODULE	1	SVLM0018702	
17	PAD, RECEIVER	1	MFBB0018101	
16	PCB ASSY, FLEXIBLE	1	SACE0047901	
15	PAD, LCD(MAIN)	1	MPBG0051401	
14	CAP,SCREW FOLDER-L	1	MCCH0093501	
13	GASKET,LCD-2	1	MGAZ0048801	
12	CAP,SCREW FOLDER-R	1	MCCH0093401	
11	CAP,SCREW FOLDER	2	MCCH0091201	
10	PAD,UPPER-1	2	MPBZ0168801	
9	PAD,UPPER	1	MPBZ0168901	
8	PAD, MOTOR	1	MPBJ0036701	
7	PAD, CON(CAMERA)	1	MPBZ0162801	
6	PAD,LCD CONN	1	MPBZ0162701	
5	COVER, FOLDER (UPPER)	1	MCJJ0045101	
4	TAPE,DECO UPPER	1	MTAA0124301	
3	DECO, FOLDER UPPER	1	MDAE0038001	
2	TAPE, WINDOW LCD(SUB)	1	MTAE0029101	
1	WINDOW, LCD(SUB)	1	AWAB0026201	
NO.	DESCRIPTION	Q'TY	DRAWING NO.	

DESCRIPTION	NO.
COVER_ASSY REAR	39,40,41,42,43,44,45,46,47,48,49,50,51,52,53,55,56,57,64,68,70,72,73
COVER_ASSY FRONT	29,30,31,32,34,35
COVER_ASSY LOWER	15,20,21,24,25,71,74
COVER_ASSY UPPER	1,2,3,4,5,6,7,8,9,10,13,16,22,62,63
WINDOW ASSY,LCD	26,27,28
PCB ASSY,MAIN	37,38

10. EXPLODED VIEW & REPLACEMENT PART LIST

10.2 Replacement Parts <Mechanic component>

Note: This Chapter is used for reference, Part order is ordered by SBOM standard on GCSC

Level	Location No.	Description	Part Number	Specification	Color	Remark
1		IMT,FOLDER	TIFF0013604		Black	
2	AAAY00	ADDITION	AAAY0202402		Black	
2	APEY00	PHONE	APEY0398002		Black	
3	ACGG00	COVER ASSY,FOLDER	ACGG0081201		Black	
4	ACGH00	COVER ASSY, FOLDER(LOWER)	ACGH0047201		Gray	
5	MCJH00	COVER,FOLDER(LOWER)	MCJH0036101	MOLD, PC LUPOY SC-1004A, , , , ,	Black	24
5	MFBB00	FILTER,RECEIVER	MFBB0018101	COMPLEX, (empty), , , , ,	Without Color	17,71
5	MGAD00	GASKET,SHIELD FORM	MGAD0144001	CUTTING, EPDM, , , , ,	Gold	74
5	MMAA00	MAGNET,SWITCH	MMAA0007601	CUTTING, STS, , , , ,	Silver	20
5	MPBG00	PAD,LCD	MPBG0051401	COMPLEX, (empty), , , , ,	Black	15
5	MPBT00	PAD,CAMERA	MPBT0039201	CUTTING, EPDM, , , , ,	Black	21
5	MPBZ00	PAD	MPBZ0175601	CUTTING, EPDM, , , , ,	Black	67
5	MTAD00	TAPE,WINDOW	MTAD0058401	COMPLEX, (empty), , , , ,	Without Color	25
4	ACGJ00	COVER ASSY, FOLDER(UPPER)	ACGJ0061601		Black	
5	AWAB00	WINDOW ASSY,LCD	AWAB0026201		Transparent	1
6	BFAA00	FILM,INMOLD	BFAA0068501	; ,BLACK METAL SILVER ,0.01 ,600 ,500	Black	
6	MWAF00	WINDOW,LCD(SUB)	MWAF0036501	MOLD, PMMA H1835M, , , , ,	Transparent	
5	MCJJ00	COVER,FOLDER(UPPER)	MCJJ0045101	MOLD, PC LUPOY SC-1004A, , , , ,	Black	5
6	MICC00	INSERT,FRONT(UPPER)	MICC0010301		Without Color	
5	MDAE00	DECO,FOLDER(UPPER)	MDAE0038001	PRESS, Al Alloy, 0.6mm, , , , ,	Black	3
5	MGAZ00	GASKET	MGAZ0048801	CUTTING, EPDM, , , , ,	Gold	13
5	MPBJ00	PAD,MOTOR	MPBJ0036701	COMPLEX, (empty), , , , ,	Black	8
5	MPBQ00	PAD,LCD(SUB)	MPBQ0029701	COMPLEX, (empty), , , , ,	Black	63
5	MPBZ00	PAD	MPBZ0162701	CUTTING, EPDM, , , , ,	Black	6
5	MPBZ01	PAD	MPBZ0168801	CUTTING, EPDM, , , , ,	Black	10
5	MPBZ02	PAD	MPBZ0168901	CUTTING, EPDM, , , , ,	Black	9
5	MTAA00	TAPE,DECO	MTAA0124301	COMPLEX, (empty), , , , ,	Without Color	4
5	MTAB00	TAPE,PROTECTION	MTAB0166501	CUTTING, EPDM, , , , ,	Transparent	22

10. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Specification	Color	Remark
5	MTAE00	TAPE,WINDOW(SUB)	MTAE0029101	COMPLEX, (empty), , , ,	Without Color	2
5	MTAZ00	TAPE	MTAZ0169301	CUTTING, STS, , , ,	Transparent	
4	ACGK00	COVER ASSY,FRONT	ACGK0078201		Gray	
5	MBHY00	BUMPER	MBHY0020001	MOLD, Urethane Rubber S190A, , , ,	Gray	34
5	MCJK00	COVER,FRONT	MCJK0062301	MOLD, PC LUPOY SC-1004A, , , ,	Dark Gray	31
6	MICC00	INSERT,FRONT(UPPER)	MICC0010301		Without Color	
5	MDAJ00	DECO,HINGE	MDAJ0011101	PRESS, Al Alloy, 0.4, , , ,	Without Color	29
5	MFBD00	FILTER,MIKE	MFBD0018301	COMPLEX, (empty), , , ,	Black	35
5	MSGB00	STOPPER,HINGE	MSGB0016001	MOLD, Urethane Rubber S190A, , , ,	Gray	32
5	MTAA00	TAPE,DECO	MTAA0124201	COMPLEX, (empty), , , ,	White	30
4	AWAB00	WINDOW ASSY,LCD	AWAB0024303		Transparent	
5	MDAH00	DECO,RECEIVER	MDAH0019401	PRESS, Al Alloy, 0.4, , , ,	Silver	28
5	MTAA00	TAPE,DECO	MTAA0124401	COMPLEX, (empty), , , ,	Without Color	27
5	MWAC00	WINDOW,LCD	MWAC0078101	CUTTING, PMMA MR 200, , , ,	Transparent	26
4	GMEY00	SCREW MACHINE,BIND	GMEY0011201	1.4 mm,3 mm,MSWR3(BK) ,N ,+ ,NYLOK	Without Color	
4	MBFE00	BRACKET,HINGE	MBFE0001301	MOLD, PC LUPOY SC-1004A, , , ,	Black	33
4	MCCH00	CAP,SCREW	MCCH0091201	MOLD, Silicone Rubber KE941-U, , , ,	Gray	11
4	MCCH01	CAP,SCREW	MCCH0093401	MOLD, Silicone Rubber KE941-U, , , ,	Gray	12
4	MCCH02	CAP,SCREW	MCCH0093501	MOLD, Silicone Rubber KE941-U, , , ,	Gray	14
4	MHFD00	HINGE,FOLDER	MHFD0014001	CASTING, STS, , , ,	Silver	61
4	MIDA00	INSULATOR,LCD	MIDA0023101	COMPLEX, (empty), , , ,	Blue	
4	MIDA01	INSULATOR,LCD	MIDA0023201	COMPLEX, (empty), , , ,	Blue	
4	MIDZ00	INSULATOR	MIDZ0121901	CUTTING, EPDM, , , ,	Black	
4	MKAZ00	KEYPAD	MKAZ0037301	COMPLEX, (empty), , , ,	Gray	36
4	MLAC00	LABEL,BARCODE	MLAC0003401	EZ LOOKS(user for mechanical)	Without Color	
4	MLAZ00	LABEL	MLAZ0038303	PRINTING, (empty), , , ,	White	
4	MPBF00	PAD,FLEXIBLE PCB	MPBF0018601	CUTTING, EPDM, , , ,	Black	69
4	MPBM00	PAD,RECEIVER	MPBM0016001	CUTTING, EPDM, , , ,	Black	
4	MPBZ00	PAD	MPBZ0175601	CUTTING, EPDM, , , ,	Black	
4	MTAB00	TAPE,PROTECTION	MTAB0153102	at&t	Transparent	
3	ACGM00	COVER ASSY,REAR	ACGM0088201		Black	
4	GMEY00	SCREW MACHINE,BIND	GMEY0014301	2.7 mm,3.5 mm,MSWR3 ,Ni,+ ,NYLOK(0.6)	Silver	

10. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Specification	Color	Remark
4	MBFK00	BRACKET,SPEAKER	MBFK0002601	MOLD, PC LUPOY SC-1004A, , , , ,	Silver	39
4	MBJN00	BUTTON,VOLUME	MBJN0009501	MOLD, ABS AF-308, , , , ,	Black	47
4	MBJZ00	BUTTON	MBJZ0007901	MOLD, PC LUPOY SC-1004A, , , , ,	Black	43
4	MCCC00	CAP,EARPHONE JACK	MCCC0038901	MOLD, PC LUPOY SC-1004A, , , , ,	Black	41
4	MCCE00	CAP,RECEPTACLE	MCCE0031801	MOLD, PC LUPOY SC-1004A, , , , ,	Black	50
4	MCCF00	CAP,MOBILE SWITCH	MCCF0038301	MOLD, Silicone Rubber KE941-U, , , , ,	Black	56
4	MCIA00	CONTACT,ANTENNA	MCIA0018501	PRESS, BeCu, , , , ,	Gold	48
4	MCJN00	COVER,REAR	MCJN0065401	MOLD, PC LUPOY SC-1004A, , , , ,	Black	64
5	MICC00	INSERT,FRONT(UPPER)	MICC0010301		Without Color	
4	MDAK00	DECO,REAR	MDAK0011801	PRESS, Al Alloy, , , , ,	Black	57
4	MFBC00	FILTER,SPEAKER	MFBC0026001	COMPLEX, (empty), , , , ,	Black	42
4	MIDZ00	INSULATOR	MIDZ0116301	CUTTING, STS, , , , ,	Blue	72
4	MIDZ01	INSULATOR	MIDZ0122201	CUTTING, EPDM, , , , ,	Yellow	70
4	MLAB00	LABEL,A/S	MLAB0001102	C2000 USASV DIA 4.0	White	
4	MLAN00	LABEL,QUALCOMM	MLAN0002801	COMPLEX, (empty), , , , ,	White	
4	MLEA00	LOCKER,BATTERY	MLEA0034701	MOLD, PC LUPOY SC-1004A, , , , ,	Black	53
4	MPBN00	PAD,SPEAKER	MPBN0037101	CUTTING, EPDM, , , , ,	Black	73
4	MSDC00	SPRING,LOCKER	MSDC0009201		Black	51
4	MTAA00	TAPE,DECO	MTAA0124501	COMPLEX, (empty), , , , ,	Without Color	55
4	MTAB00	TAPE,PROTECTION	MTAB0159401	CUTTING, EPDM, , , , ,	Green	68
4	MTAZ00	TAPE	MTAZ0149501	COMPLEX, (empty), , , , ,	Black	
4	MTAZ01	TAPE	MTAZ0149601	COMPLEX, (empty), , , , ,	Black	52
3	GMEY00	SCREW MACHINE,BIND	GMEY0011201	1.4 mm,3 mm,MSWR3(BK) ,N ,+ ,NYLOK	Without Color	66
3	MCCH00	CAP,SCREW	MCCH0091301	MOLD, Silicone Rubber KE941-U, , , , ,	Black	54
3	MCCH01	CAP,SCREW	MCCH0095601	MOLD, Silicone Rubber KE941-U, , , , ,	Black	58
3	MLAK00	LABEL,MODEL	MLAK0006901			
5	SAFF00	DOME ASSY,METAL	ADCA0057601		Without Color	37
5	MLAZ00	LABEL	MLAZ0038301	PID Label 4 Array	Without Color	

Note: This Chapter is used for reference, Part order is ordered by SBOM standard on GCSC

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10. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Specification	Color	Remark
6	C108	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C109	CAP,CERAMIC,CHIP	ECCH0000115	22 pF,50V,J,NP0,TC,1005,R/TP		
6	C110	CAP,CERAMIC,CHIP	ECCH0000115	22 pF,50V,J,NP0,TC,1005,R/TP		
6	C111	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C112	CAP,TANTAL,CHIP	ECTH0001703	22 uF,6.3V ,M ,L _ESR ,2012 ,R/TP		
6	C113	CAP,CERAMIC,CHIP	ECCH0000115	22 pF,50V,J,NP0,TC,1005,R/TP		
6	C114	CAP,CERAMIC,CHIP	ECCH0000115	22 pF,50V,J,NP0,TC,1005,R/TP		
6	C115	CAP,CERAMIC,CHIP	ECCH0000115	22 pF,50V,J,NP0,TC,1005,R/TP		
6	C116	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C117	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C118	CAP,CERAMIC,CHIP	ECCH0000115	22 pF,50V,J,NP0,TC,1005,R/TP		
6	C119	CAP,CERAMIC,CHIP	ECCH0000115	22 pF,50V,J,NP0,TC,1005,R/TP		
6	C120	CAP,CERAMIC,CHIP	ECCH0000115	22 pF,50V,J,NP0,TC,1005,R/TP		
6	C121	CAP,CERAMIC,CHIP	ECCH0000115	22 pF,50V,J,NP0,TC,1005,R/TP		
6	C122	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C123	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C124	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP		
6	C125	CAP,CERAMIC,CHIP	ECCH0000115	22 pF,50V,J,NP0,TC,1005,R/TP		
6	C126	CAP,CHIP,MAKER	ECZH0000844	68 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C128	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C129	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C130	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C131	CAP,CHIP,MAKER	ECZH0000846	8.2 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP		
6	C132	CAP,CERAMIC,CHIP	ECCH0000147	2.2 nF,50V,K,X7R,HD,1005,R/TP		
6	C133	INDUCTOR,CHIP	ELCH0001011	1.8 nH,J ,1005 ,R/TP ,Pb Free		
6	C134	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP		
6	C135	CAP,CHIP,MAKER	ECZH0000830	33 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C136	CAP,CERAMIC,CHIP	ECCH0000147	2.2 nF,50V,K,X7R,HD,1005,R/TP		
6	C137	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP		
6	C140	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C141	CAP,CERAMIC,CHIP	ECCH0000165	68 nF,6.3V,K,X5R,HD,1005,R/TP		
6	C142	CAP,CERAMIC,CHIP	ECCH0000127	82 pF,50V,J,NP0,TC,1005,R/TP		
6	C143	CAP,CERAMIC,CHIP	ECCH0000175	2.7 pF,50V ,B ,NP0 ,TC ,1005 ,R/TP		
6	C144	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		

10. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Specification	Color	Remark
6	C145	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C146	CAP,CERAMIC,CHIP	ECCH0000101	.5 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP		
6	C147	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C148	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C149	CAP,CHIP,MAKER	ECZH0000844	68 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C150	CAP,CHIP,MAKER	ECZH0000841	56 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C151	CAP,CERAMIC,CHIP	ECCH0000147	2.2 nF,50V,K,X7R,HD,1005,R/TP		
6	C152	CAP,TANTAL,CHIP	ECTH0003703	4.7 uF,6.3V ,M ,STD ,1608 ,R/TP		
6	C153	CAP,CHIP,MAKER	ECZH0000816	12 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C154	CAP,CERAMIC,CHIP	ECCH0000175	2.7 pF,50V ,B ,NP0 ,TC ,1005 ,R/TP		
6	C156	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C158	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C159	CAP,CERAMIC,CHIP	ECCH0000101	.5 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP		
6	C160	CAP,CERAMIC,CHIP	ECCH0000147	2.2 nF,50V,K,X7R,HD,1005,R/TP		
6	C162	INDUCTOR,CHIP	ELCH0005005	27 nH,J ,1005 ,R/TP ,		
6	C163	CAP,CHIP,MAKER	ECZH0000830	33 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C164	CAP,CERAMIC,CHIP	ECCH0000105	4 pF,50V,C,NP0,TC,1005,R/TP		
6	C165	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C166	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C167	CAP,CERAMIC,CHIP	ECCH0000105	4 pF,50V,C,NP0,TC,1005,R/TP		
6	C168	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C169	CAP,FILM,MPP	ECFD0000105	2.2 nF,16V ,J ,STD ,SMD ,1608 mm,R/TP ,; ,.5% ,[empty] ,[empty] ,-55TO+125C ,[empty] ,1.6X0.8X0.7MM ,R/TP		
6	C170	CAP,CERAMIC,CHIP	ECCH0000187	150 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C172	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C173	CAP,CERAMIC,CHIP	ECCH0005602	2.2 uF,16V ,K ,X5R ,HD ,1608 ,R/TP		
6	C174	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP		
6	C175	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C176	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C177	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C178	CAP,CERAMIC,CHIP	ECCH0000127	82 pF,50V,J,NP0,TC,1005,R/TP		
6	C179	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C180	CAP,CHIP,MAKER	ECZH0003121	68 nF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C181	CAP,CERAMIC,CHIP	ECCH0000110	10 pF,50V,D,NP0,TC,1005,R/TP		

10. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Specification	Color	Remark
6	C182	CAP,CERAMIC,CHIP	ECCH0000178	1.8 pF,50V ,D ,NP0 ,TC ,1005 ,R/TP		
6	C183	CAP,CERAMIC,CHIP	ECCH0000127	82 pF,50V,J,NP0,TC,1005,R/TP		
6	C184	CAP,CHIP,MAKER	ECZH0000830	33 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C185	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C186	CAP,CHIP,MAKER	ECZH0000830	33 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C188	CAP,CERAMIC,CHIP	ECCH0000101	.5 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP		
6	C189	CAP,CERAMIC,CHIP	ECCH0000178	1.8 pF,50V ,D ,NP0 ,TC ,1005 ,R/TP		
6	C190	CAP,CERAMIC,CHIP	ECCH0000110	10 pF,50V,D,NP0,TC,1005,R/TP		
6	C191	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C192	CAP,CHIP,MAKER	ECZH0000830	33 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C193	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C194	CAP,CHIP,MAKER	ECZH0000830	33 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C195	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C196	CAP,CHIP,MAKER	ECZH0000830	33 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C197	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C200	CAP,TANTAL,CHIP,MAKER	ECTZ0004701	4.7 uF,6.3V ,M ,STD ,1608 ,R/TP		
6	C201	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP		
6	C202	CAP,TANTAL,CHIP,MAKER	ECTZ0005201	10 uF,6.3V ,M ,L ,ESR ,1608 ,R/TP		
6	C203	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C204	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C205	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C206	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C207	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP		
6	C208	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP		
6	C209	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP		
6	C210	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C211	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP		
6	C212	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP		
6	C213	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C214	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C215	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C216	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C217	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C218	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		

10. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Specification	Color	Remark
6	C219	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP		
6	C220	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP		
6	C221	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP		
6	C222	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP		
6	C223	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C224	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C225	CAP,CERAMIC,CHIP	ECCH0000147	2.2 nF,50V,K,X7R,HD,1005,R/TP		
6	C226	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C227	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C228	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C229	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C230	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP		
6	C231	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C232	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C233	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C234	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C235	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C236	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C237	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C238	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP		
6	C239	CAP,CERAMIC,CHIP	ECCH0000161	33 nF,16V,K,X7R,HD,1005,R/TP		
6	C240	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C300	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C301	CAP,CERAMIC,CHIP	ECCH0000112	15 pF,50V,J,NP0,TC,1005,R/TP		
6	C302	CAP,TANTAL,CHIP	ECTH0005201	33 uF,6.3V ,M ,L_ ESR ,2012 ,R/TP , , [empty] , [empty] , [empty] , , 2.2X1.1X1.1MM , [empty] , [empty] , [empty]		
6	C303	CAP,TANTAL,CHIP	ECTH0005201	33 uF,6.3V ,M ,L_ ESR ,2012 ,R/TP , , [empty] , [empty] , [empty] , , 2.2X1.1X1.1MM , [empty] , [empty] , [empty]		
6	C304	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C305	CAP,CHIP,MAKER	ECZH0000826	27 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C306	CAP,CERAMIC,CHIP	ECCH0000110	10 pF,50V,D,NP0,TC,1005,R/TP		
6	C307	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C308	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C309	CAP,TANTAL,CHIP,MAKER	ECTZ0005201	10 uF,6.3V ,M ,L_ ESR ,1608 ,R/TP		
6	C310	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		

10. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Specification	Color	Remark
6	C311	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C312	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C313	CAP,TANTAL,CHIP,MAKER	ECTZ0005201	10 uF,6.3V ,M ,L_ESR ,1608 ,R/TP		
6	C314	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C315	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C316	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C317	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C318	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C319	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C320	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP		
6	C321	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C322	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP		
6	C323	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C324	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C327	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP		
6	C328	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP		
6	C329	CAP,TANTAL,CHIP,MAKER	ECTZ0005201	10 uF,6.3V ,M ,L_ESR ,1608 ,R/TP		
6	C330	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C331	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C332	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C400	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C401	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C402	CAP,TANTAL,CHIP	ECTH0005201	33 uF,6.3V ,M ,L_ESR ,2012 ,R/TP , , ,[empty] ,[empty] , ,[empty] , ,2.2X1.1X1.1MM ,[empty] ,[empty] ,[empty]		
6	C403	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C404	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C405	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C406	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C407	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C408	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C409	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C410	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C411	CAP,CERAMIC,CHIP	ECCH0006201	4.7 uF,6.3V ,K ,X5R ,TC ,1608 ,R/TP		
6	C412	CAP,CERAMIC,CHIP	ECCH0006201	4.7 uF,6.3V ,K ,X5R ,TC ,1608 ,R/TP		
6	C413	CAP,CERAMIC,CHIP	ECCH0006201	4.7 uF,6.3V ,K ,X5R ,TC ,1608 ,R/TP		

10. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Specification	Color	Remark
6	C414	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C415	CAP,CERAMIC,CHIP	ECCH0005602	2.2 uF,16V ,K ,X5R ,HD ,1608 ,R/TP		
6	C416	CAP,CERAMIC,CHIP	ECCH0005602	2.2 uF,16V ,K ,X5R ,HD ,1608 ,R/TP		
6	C417	CAP,CERAMIC,CHIP	ECCH0006201	4.7 uF,6.3V ,K ,X5R ,TC ,1608 ,R/TP		
6	C418	CAP,CERAMIC,CHIP	ECCH0005602	2.2 uF,16V ,K ,X5R ,HD ,1608 ,R/TP		
6	C419	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C420	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C421	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C422	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C423	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C424	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C425	CAP,CERAMIC,CHIP	ECCH0006201	4.7 uF,6.3V ,K ,X5R ,TC ,1608 ,R/TP		
6	C426	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C427	CAP,CERAMIC,CHIP	ECCH0006201	4.7 uF,6.3V ,K ,X5R ,TC ,1608 ,R/TP		
6	C428	CAP,CERAMIC,CHIP	ECCH0006201	4.7 uF,6.3V ,K ,X5R ,TC ,1608 ,R/TP		
6	C429	CAP,CERAMIC,CHIP	ECCH0000115	22 pF,50V,J,NP0,TC,1005,R/TP		
6	C430	CAP,CERAMIC,CHIP	ECCH0000115	22 pF,50V,J,NP0,TC,1005,R/TP		
6	C431	CAP,CERAMIC,CHIP	ECCH0005602	2.2 uF,16V ,K ,X5R ,HD ,1608 ,R/TP		
6	C432	CAP,CERAMIC,CHIP	ECCH0005602	2.2 uF,16V ,K ,X5R ,HD ,1608 ,R/TP		
6	C433	CAP,CERAMIC,CHIP	ECCH0006201	4.7 uF,6.3V ,K ,X5R ,TC ,1608 ,R/TP		
6	C434	CAP,CERAMIC,CHIP	ECCH0006201	4.7 uF,6.3V ,K ,X5R ,TC ,1608 ,R/TP		
6	C435	CAP,CERAMIC,CHIP	ECCH0006201	4.7 uF,6.3V ,K ,X5R ,TC ,1608 ,R/TP		
6	C436	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C437	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C438	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C439	CAP,TANTAL,CHIP,MAKER	ECTZ0005201	10 uF,6.3V ,M ,L_ ESR ,1608 ,R/TP		
6	C440	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C500	CAP,CERAMIC,CHIP	ECCH0000165	68 nF,6.3V,K,X5R,HD,1005,R/TP		
6	C501	CAP,CHIP,MAKER	ECZH0000830	33 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C502	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C503	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C504	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C505	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C506	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		

10. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Specification	Color	Remark
6	C507	CAP,TANTAL,CHIP	ECTH0005201	33 uF,6.3V ,M ,L_ESR ,2012 ,R/TP , , ,[empty] ,[empty] , ,[empty] , ,2.2X1.1X1.1MM ,[empty] ,[empty] ,[empty]		
6	C508	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP		
6	C509	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C510	CAP,CERAMIC,CHIP	ECCH0002002	47000 pF,10V ,K ,B ,HD ,1005 ,R/TP		
6	C511	CAP,CHIP,MAKER	ECZH0000830	33 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C512	CAP,CHIP,MAKER	ECZH0000830	33 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C513	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C514	CAP,CHIP,MAKER	ECZH0000830	33 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C80	CAP,CHIP,MAKER	ECZH0000841	56 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C82	INDUCTOR,CHIP	ELCH0001408	6.8 nH,J ,1005 ,R/TP ,Pb Free		
6	C83	CAP,CERAMIC,CHIP	ECCH0001002	180 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C84	CAP,CERAMIC,CHIP	ECCH0001002	180 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C86	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C87	CAP,CHIP,MAKER	ECZH0000830	33 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C88	CAP,CHIP,MAKER	ECZH0000841	56 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C89	CAP,CERAMIC,CHIP	ECCH0000107	6 pF,50V,D,NP0,TC,1005,R/TP		
6	C90	CAP,CERAMIC,CHIP	ECCH0000107	6 pF,50V,D,NP0,TC,1005,R/TP		
6	C91	CAP,CERAMIC,CHIP	ECCH0001002	180 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C93	CAP,CHIP,MAKER	ECZH0000806	5 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP		
6	C94	CAP,CHIP,MAKER	ECZH0000816	12 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C95	CAP,CERAMIC,CHIP	ECCH0001002	180 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C96	CAP,CERAMIC,CHIP	ECCH0000149	3.3 nF,50V,K,X7R,HD,1005,R/TP		
6	C97	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C98	CAP,CERAMIC,CHIP	ECCH0000101	.5 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP		
6	C99	CAP,CHIP,MAKER	ECZH0000816	12 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	CN500	CONNECTOR,BOARD TO BOARD	ENBY0039001	54 PIN,0.4 mm,ETC , ,H=1.5, P4S Header		
6	CN501	CONNECTOR,I/O	ENRY0003501	24 PIN,0.5 mm,ANGLE , ,		
6	CON300	CONN,JACK/PLUG, EARPHONE	ENJE0003105	4 ,4 PIN,POP-UP		
6	CON301	CONNECTOR,BOARD TO BOARD	ENBY0001802	2 PIN,1.27 mm,STRAIGHT ,SILVER ,		
6	D300	DIODE,TVS	EDTY0008604	SOT-563 ,6 V,100 W,R/TP ,PB-FREE		
6	D400	DIODE,SWITCHING	EDSY0015501	EMD2 ,30 V,200 mA,R/TP ,VF=0.6V(IF=0.2A) / IR=1.0MICRO-A(VR=10V)		
6	D500	DIODE,SWITCHING	EDSY0011901	EMD2 ,30 V,1 A,R/TP ,VF=1.5V(IF=200mA) , IR=30uA(VR=10V)		

10. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Specification	Color	Remark
6	D501	DIODE,TVS	EDTY0007501	SOD-523 ,5 V,240 W,R/TP ,Vc 12.5V , 160pF , 1.6*0.8*.06		
6	D502	DIODE,TVS	EDTY0001901	SOD-323 ,6 V,350 W,R/TP ,Junction capacitance:350 pF		
6	D503	DIODE,TVS	EDTY0006201	SOD-323 ,12 V,350 W,R/TP ,Single Line TVS Diode for ESD		
6	D504	DIODE,TVS	EDTY0008607	SC70-6L ,6 V,200 W,R/TP ,PB-FREE		
6	D600	DIODE,SWITCHING	EDSY0011901	EMD2 ,30 V,1 A,R/TP ,VF=1.5V(IF=200mA) , IR=30uA(VR=10V)		
6	D601	DIODE,SWITCHING	EDSY0011901	EMD2 ,30 V,1 A,R/TP ,VF=1.5V(IF=200mA) , IR=30uA(VR=10V)		
6	FB300	FILTER,BEAD,CHIP	SFBH0009801	600 ohm,1005 ,DC Res.0.6ohm, R.C.500mA		
6	FB301	FILTER,BEAD,CHIP	SFBH0009801	600 ohm,1005 ,DC Res.0.6ohm, R.C.500mA		
6	FB302	FILTER,BEAD,CHIP	SFBH0009801	600 ohm,1005 ,DC Res.0.6ohm, R.C.500mA		
6	FB500	FILTER,BEAD,CHIP	SFBH0000909	60 ohm,1005 ,		
6	FL100	FILTER,SAW,DUAL	SFSB0000601	836.5 MHz,25 MHz,4.4 dB,17 dB,897.5 MHz,35 MHz,4.4 dB,10 dB,3.2*2.5*1.5 ,SMD ,Pb-free_Tx Dual SAW & Switch Module		
6	FL101	DUPLEXER,PCS	SDPY0002902	1880 MHz,1960 MHz,3.8 dB,3.5 dB,43 dB,52 dB,3.8*3.8*1.4 ,SMD ,FBAR		
6	FL102	FILTER,SAW	SFSY0020101	1880 MHz,2.0*1.6*0.8 ,SMD ,		
6	FL103	FILTER,SAW	SFSY0018101	836.5 MHz,2.0*1.6*0.68 ,SMD ,		
6	FL104	DUPLEXER,DCN	SDDY0004101	836.5 MHz,881.5 MHz,2.0 dB,2.7 dB,49 dB,61 dB,3.0*2.5*1.25 ,SMD ,		
6	FL105	FILTER,SAW	SFSY0018201	881.5 MHz,2.0*1.4*0.78 ,SMD ,		
6	FL106	FILTER,SAW	SFSY0024901	1960 MHz,2.0*1.4*0.68 ,SMD ,5pin, Unbal-Bal, 50/100, B7834 Low Loss ver.		
6	FL500	FILTER,EMI/POWER	SFEY0007103	SMD ,18 V , ,SMD ,4ch. R-Varistor Array(50Ohm,15pF), Pb-free		
6	FL501	FILTER,EMI/POWER	SFEY0007103	SMD ,18 V , ,SMD ,4ch. R-Varistor Array(50Ohm,15pF), Pb-free		
6	FL502	FILTER,EMI/POWER	SFEY0007103	SMD ,18 V , ,SMD ,4ch. R-Varistor Array(50Ohm,15pF), Pb-free		
6	FL503	FILTER,EMI/POWER	SFEY0007103	SMD ,18 V , ,SMD ,4ch. R-Varistor Array(50Ohm,15pF), Pb-free		
6	FL504	FILTER,EMI/POWER	SFEY0007103	SMD ,18 V , ,SMD ,4ch. R-Varistor Array(50Ohm,15pF), Pb-free		
6	FL505	FILTER,EMI/POWER	SFEY0007103	SMD ,18 V , ,SMD ,4ch. R-Varistor Array(50Ohm,15pF), Pb-free		
6	FL506	FILTER,EMI/POWER	SFEY0007103	SMD ,18 V , ,SMD ,4ch. R-Varistor Array(50Ohm,15pF), Pb-free		
6	FL507	FILTER,EMI/POWER	SFEY0006501	SMD ,3 TERMINAL EMI FILTER		
6	FL508	FILTER,EMI/POWER	SFEY0007103	SMD ,18 V , ,SMD ,4ch. R-Varistor Array(50Ohm,15pF), Pb-free		
6	J500	CONN,SOCKET	ENSY0016601	6 PIN,ETC , ,2.54 mm,H=2.5		

10. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Specification	Color	Remark
6	L100	INDUCTOR,CHIP	ELCH0001406	4.7 nH,S ,1005 ,R/TP ,PBFREE		
6	L101	INDUCTOR,CHIP	ELCH0001410	12 nH,J ,1005 ,R/TP ,Pb Free		
6	L103	INDUCTOR,CHIP	ELCH0001401	15 nH,J ,1005 ,R/TP ,Pb Free		
6	L104	INDUCTOR,CHIP	ELCH0001406	4.7 nH,S ,1005 ,R/TP ,PBFREE		
6	L105	INDUCTOR,CHIP	ELCH0003814	5.1 nH,S ,1005 ,R/TP ,5.1nH,1005		
6	L106	INDUCTOR,CHIP	ELCH0001401	15 nH,J ,1005 ,R/TP ,Pb Free		
6	L107	INDUCTOR,CHIP	ELCH0001410	12 nH,J ,1005 ,R/TP ,Pb Free		
6	L108	INDUCTOR,CHIP	ELCH0003814	5.1 nH,S ,1005 ,R/TP ,5.1nH,1005		
6	L109	INDUCTOR,CHIP	ELCH0001011	1.8 nH,J ,1005 ,R/TP ,Pb Free		
6	L110	INDUCTOR,CHIP	ELCH0001413	22 nH,J ,1005 ,R/TP ,PBFREE		
6	L111	CAP,CHIP,MAKER	ECZH0000841	56 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	L112	INDUCTOR,CHIP	ELCH0001404	1.5 nH,S ,1005,R/TP		
6	L113	INDUCTOR,CHIP	ELCH0003825	56 nH,J ,1005 ,R/TP ,chip inductor,PBFREE		
6	L115	INDUCTOR,CHIP	ELCH0001413	22 nH,J ,1005 ,R/TP ,PBFREE		
6	L116	INDUCTOR,CHIP	ELCH0005813	27 nH,J ,1005 ,R/TP ,		
6	L117	INDUCTOR,CHIP	ELCH0001421	47 nH,J ,1005 ,R/TP ,PBFREE		
6	L118	INDUCTOR,CHIP	ELCH0001421	47 nH,J ,1005 ,R/TP ,PBFREE		
6	L119	INDUCTOR,CHIP	ELCH0005813	27 nH,J ,1005 ,R/TP ,		
6	L120	INDUCTOR,CHIP	ELCH0001406	4.7 nH,S ,1005 ,R/TP ,PBFREE		
6	L121	INDUCTOR,CHIP	ELCH0001401	15 nH,J ,1005 ,R/TP ,Pb Free		
6	L124	INDUCTOR,CHIP	ELCH0005020	1 nH,S ,1005 ,R/TP ,		
6	L125	INDUCTOR,CHIP	ELCH0001407	5.6 nH,S ,1005 ,R/TP ,PBFREE		
6	L127	INDUCTOR,CHIP	ELCH0001406	4.7 nH,S ,1005 ,R/TP ,PBFREE		
6	L128	INDUCTOR,CHIP	ELCH0001034	3.3 nH,S ,1005 ,R/TP ,PBFREE		
6	L129	INDUCTOR,CHIP	ELCH0001031	15 nH,J ,1005 ,R/TP ,PBFREE		
6	L131	INDUCTOR,CHIP	ELCH0001033	1.5 nH,S ,1005 ,R/TP ,PBFREE		
6	L132	INDUCTOR,CHIP	ELCH0001406	4.7 nH,S ,1005 ,R/TP ,PBFREE		
6	L133	INDUCTOR,CHIP	ELCH0001009	1.2 nH,S ,1005 ,R/TP ,		
6	L134	INDUCTOR,CHIP	ELCH0001031	15 nH,J ,1005 ,R/TP ,PBFREE		
6	L135	INDUCTOR,CHIP	ELCH0001031	15 nH,J ,1005 ,R/TP ,PBFREE		
6	L137	INDUCTOR,CHIP	ELCH0001031	15 nH,J ,1005 ,R/TP ,PBFREE		
6	L138	INDUCTOR,CHIP	ELCH0005006	33 nH,J ,1005 ,R/TP ,		
6	L139	INDUCTOR,CHIP	ELCH0001009	1.2 nH,S ,1005 ,R/TP ,		
6	L140	INDUCTOR,CHIP	ELCH0001421	47 nH,J ,1005 ,R/TP ,PBFREE		

10. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Specification	Color	Remark
6	L141	INDUCTOR,CHIP	ELCH0004716	39 nH,J ,1005 ,R/TP ,		
6	L142	INDUCTOR,CHIP	ELCH0005803	2.7 nH,S ,1005 ,R/TP ,		
6	L143	INDUCTOR,CHIP	ELCH0004716	39 nH,J ,1005 ,R/TP ,		
6	L144	INDUCTOR,CHIP	ELCH0003816	3.6 nH,S ,1005 ,R/TP ,		
6	L400	INDUCTOR,SMD,POWER	ELCP0008004	4.7 uH,M ,1 ,R/TP , , , , 0.3NH , , , , ,NON SHIELD ,2.5X2X1MM ,11MM ,R/TP		
6	L401	INDUCTOR,SMD,POWER	ELCP0008004	4.7 uH,M ,1 ,R/TP , , , , 0.3NH , , , , ,NON SHIELD ,2.5X2X1MM ,11MM ,R/TP		
6	L402	INDUCTOR,SMD,POWER	ELCP0008004	4.7 uH,M ,1 ,R/TP , , , , 0.3NH , , , , ,NON SHIELD ,2.5X2X1MM ,11MM ,R/TP		
6	L90	CAP,CERAMIC,CHIP	ECCH0001001	6.8 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP		
6	M100	MODULE,ETC	SMZY0010701	Bluetooth RF Module, 4.5*3.2*1.2		
6	Q100	TR,BJT,ARRAY	EQBA0000602	TESV ,200 mW,R/TP ,EPITAXIAL PLANAR NPN/PNP TRANSISTOR		
6	Q101	TR,BJT,ARRAY	EQBA0000602	TESV ,200 mW,R/TP ,EPITAXIAL PLANAR NPN/PNP TRANSISTOR		
6	Q400	TR,BJT,PNP	EQBP0009901	TSMT6 ,0.5 W,R/TP ,Vceo=-12V, Ic=-3A, hFE=270~680		
6	Q401	TR,FET,P-CHANNEL	EQFP0004701	TSOP6 ,1.5 W,20 V,-5 A,R/TP ,P-CHANNEL 20-V(D-S) MOSFET, Pb free		
6	Q402	TR,FET,P-CHANNEL	EQFP0004701	TSOP6 ,1.5 W,20 V,-5 A,R/TP ,P-CHANNEL 20-V(D-S) MOSFET, Pb free		
6	Q500	TR,BJT,ARRAY	EQBA0000602	TESV ,200 mW,R/TP ,EPITAXIAL PLANAR NPN/PNP TRANSISTOR		
6	R100	RES,CHIP,MAKER	ERHZ0000404	1 Kohm,1/16W ,J ,1005 ,R/TP		
6	R101	RES,CHIP,MAKER	ERHZ0000404	1 Kohm,1/16W ,J ,1005 ,R/TP		
6	R102	RES,CHIP,MAKER	ERHZ0000404	1 Kohm,1/16W ,J ,1005 ,R/TP		
6	R103	RES,CHIP,MAKER	ERHZ0000404	1 Kohm,1/16W ,J ,1005 ,R/TP		
6	R104	RES,CHIP,MAKER	ERHZ0000212	12 Kohm,1/16W ,F ,1005 ,R/TP		
6	R105	RES,CHIP,MAKER	ERHZ0000310	680 ohm,1/16W ,F ,1005 ,R/TP		
6	R106	RES,CHIP,MAKER	ERHZ0003801	5.1 ohm,1/16W ,J ,1005 ,R/TP		
6	R107	RES,CHIP,MAKER	ERHZ0003801	5.1 ohm,1/16W ,J ,1005 ,R/TP		
6	R108	RES,CHIP,MAKER	ERHZ0000512	82 ohm,1/16W ,J ,1005 ,R/TP		
6	R109	RES,CHIP,MAKER	ERHZ0000402	10 ohm,1/16W ,J ,1005 ,R/TP		
6	R110	RES,CHIP,MAKER	ERHZ0000512	82 ohm,1/16W ,J ,1005 ,R/TP		
6	R111	RES,CHIP,MAKER	ERHZ0000512	82 ohm,1/16W ,J ,1005 ,R/TP		
6	R112	RES,CHIP,MAKER	ERHZ0000490	51 ohm,1/16W ,J ,1005 ,R/TP		
6	R114	RES,CHIP,MAKER	ERHZ0000443	2200 ohm,1/16W ,J ,1005 ,R/TP		
6	R115	RES,CHIP,MAKER	ERHZ0000408	110 ohm,1/16W ,J ,1005 ,R/TP		
6	R116	RES,CHIP,MAKER	ERHZ0000408	110 ohm,1/16W ,J ,1005 ,R/TP		

10. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Specification	Color	Remark
6	R117	RES,CHIP,MAKER	ERHZ0000527	200 ohm,1/6W ,J ,1005 ,R/TP		
6	R118	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
6	R119	INDUCTOR,CHIP	ELCH0001009	1.2 nH,S ,1005 ,R/TP ,		
6	R120	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
6	R121	RES,CHIP,MAKER	ERHZ0000318	80.6 Kohm,1/16W ,F ,1005 ,R/TP		
6	R122	RES,CHIP,MAKER	ERHZ0000288	470 Kohm,1/16W ,F ,1005 ,R/TP		
6	R123	THERMISTOR	SETY0007001	NTC ,68000 ohm,SMD ,68kohm, 1005, Thermistor		
6	R124	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R125	RES,CHIP,MAKER	ERHZ0000490	51 ohm,1/16W ,J ,1005 ,R/TP		
6	R126	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
6	R127	RES,CHIP,MAKER	ERHZ0000495	56 ohm,1/16W ,J ,1005 ,R/TP		
6	R128	RES,CHIP,MAKER	ERHZ0000408	110 ohm,1/16W ,J ,1005 ,R/TP		
6	R129	RES,CHIP,MAKER	ERHZ0000408	110 ohm,1/16W ,J ,1005 ,R/TP		
6	R130	RES,CHIP,MAKER	ERHZ0000203	10 Kohm,1/16W ,F ,1005 ,R/TP		
6	R131	RES,CHIP,MAKER	ERHZ0000529	1.5 Kohm,1/16W ,J ,1005 ,R/TP		
6	R132	RES,CHIP,MAKER	ERHZ0000351	11800 ohm,1/16W ,F ,1005 ,R/TP		
6	R133	RES,CHIP	ERHY0005902	5.62 Kohm,1/16W ,F ,1005 ,R/TP		
6	R134	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
6	R135	RES,CHIP,MAKER	ERHZ0000326	330 ohm,1/16W ,F ,1005 ,R/TP		
6	R136	RES,CHIP,MAKER	ERHZ0000402	10 ohm,1/16W ,J ,1005 ,R/TP		
6	R137	RES,CHIP,MAKER	ERHZ0000490	51 ohm,1/16W ,J ,1005 ,R/TP		
6	R200	RES,CHIP,MAKER	ERHZ0000537	680000 ohm,1/16W ,F ,1005 ,R/TP		
6	R201	RES,CHIP,MAKER	ERHZ0000537	680000 ohm,1/16W ,F ,1005 ,R/TP		
6	R202	RES,CHIP,MAKER	ERHZ0000407	1000 Kohm,1/16W ,J ,1005 ,R/TP		
6	R203	RES,CHIP,MAKER	ERHZ0000316	750 Kohm,1/16W ,F ,1005 ,R/TP		
6	R204	RES,CHIP,MAKER	ERHZ0000222	150 Kohm,1/16W ,F ,1005 ,R/TP		
6	R205	RES,CHIP,MAKER	ERHZ0000493	51 Kohm,1/16W ,J ,1005 ,R/TP		
6	R206	RES,CHIP,MAKER	ERHZ0000443	2200 ohm,1/16W ,J ,1005 ,R/TP		
6	R207	RES,CHIP,MAKER	ERHZ0000493	51 Kohm,1/16W ,J ,1005 ,R/TP		
6	R208	RES,CHIP,MAKER	ERHZ0000493	51 Kohm,1/16W ,J ,1005 ,R/TP		
6	R209	RES,CHIP,MAKER	ERHZ0000493	51 Kohm,1/16W ,J ,1005 ,R/TP		
6	R210	RES,CHIP,MAKER	ERHZ0000441	22 ohm,1/16W ,J ,1005 ,R/TP		
6	R212	RES,CHIP,MAKER	ERHZ0000437	2 Kohm,1/16W ,J ,1005 ,R/TP		
6	R213	RES,CHIP,MAKER	ERHZ0000490	51 ohm,1/16W ,J ,1005 ,R/TP		

10. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Specification	Color	Remark
6	R214	RES,CHIP	ERHY0003601	2700 ohm,1/16W ,J ,1005 ,R/TP		
6	R215	RES,CHIP	ERHY0003601	2700 ohm,1/16W ,J ,1005 ,R/TP		
6	R300	RES,CHIP	ERHY0000105	51 ohm,1/16W,F,1005,R/TP		
6	R301	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R302	RES,CHIP	ERHY0000105	51 ohm,1/16W,F,1005,R/TP		
6	R303	RES,CHIP,MAKER	ERHZ0000443	2200 ohm,1/16W ,J ,1005 ,R/TP		
6	R304	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R305	RES,CHIP,MAKER	ERHZ0000407	1000 Kohm,1/16W ,J ,1005 ,R/TP		
6	R306	RES,CHIP,MAKER	ERHZ0000493	51 Kohm,1/16W ,J ,1005 ,R/TP		
6	R307	RES,CHIP,MAKER	ERHZ0000443	2200 ohm,1/16W ,J ,1005 ,R/TP		
6	R308	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R311	RES,CHIP,MAKER	ERHZ0000308	62 Kohm,1/16W ,F ,1005 ,R/TP		
6	R312	RES,CHIP,MAKER	ERHZ0000308	62 Kohm,1/16W ,F ,1005 ,R/TP		
6	R313	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R400	RES,CHIP,MAKER	ERHZ0004301	0.1 ohm,1/4W ,F ,ETC ,R/TP		
6	R401	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R402	RES,CHIP,MAKER	ERHZ0004201	121000 ohm,1/16W ,F ,1005 ,R/TP		
6	R403	RES,CHIP,MAKER	ERHZ0000439	200 Kohm,1/16W ,J ,1005 ,R/TP		
6	R404	RES,CHIP,MAKER	ERHZ0000405	10 Kohm,1/16W ,J ,1005 ,R/TP		
6	R405	RES,CHIP,MAKER	ERHZ0000490	51 ohm,1/16W ,J ,1005 ,R/TP		
6	R406	RES,CHIP,MAKER	ERHZ0000493	51 Kohm,1/16W ,J ,1005 ,R/TP		
6	R407	RES,CHIP,MAKER	ERHZ0000493	51 Kohm,1/16W ,J ,1005 ,R/TP		
6	R408	RES,CHIP,MAKER	ERHZ0000443	2200 ohm,1/16W ,J ,1005 ,R/TP		
6	R409	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R410	RES,CHIP,MAKER	ERHZ0000404	1 Kohm,1/16W ,J ,1005 ,R/TP		
6	R500	RES,CHIP,MAKER	ERHZ0000318	80.6 Kohm,1/16W ,F ,1005 ,R/TP		
6	R501	RES,CHIP,MAKER	ERHZ0000288	470 Kohm,1/16W ,F ,1005 ,R/TP		
6	R502	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
6	R504	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
6	R506	RES,CHIP,MAKER	ERHZ0000288	470 Kohm,1/16W ,F ,1005 ,R/TP		
6	R507	RES,CHIP	ERHY0000128	15K ohm,1/16W,F,1005,R/TP		
6	R508	RES,CHIP,MAKER	ERHZ0000537	680000 ohm,1/16W ,F ,1005 ,R/TP		
6	R602	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	RA600	RES,ARRAY,R	ERNR0000404	100 Kohm,100 Kohm,8 PIN,J ,1/16W ,SMD ,R/TP		

10. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Specification	Color	Remark
6	SW100	CONN,RF SWITCH	ENWY0003301	,SMD ,0.4 dB,		
6	U100	FILTER,SEPERATOR	SFAY0009201	, , dB, dB, dB, dB,ETC ,		
6	U101	IC	EUSY0300501	QFN ,56 PIN,R/TP ,GSM, WCDMA Single RF Transceiver, 8X8X0.9		
6	U102	PAM	SMPY0013501	35 dBm,51 % , A, dBc, dB,7x7x1.1 ,SMD ,Polar Edge		
6	U103	COUPLER,RF DIRECTIONAL	SCDY0003402	-20 dB,-0.25 dB,-35 dB,1.0*0.58*0.35 ,SMD ,1850M ~ 1910M, 4pin, Pb Free		
6	U104	IC	EUSY0084701	SSOP5-P-A ,6 PIN,R/TP ,Inverter, Pb Free		
6	U105	PAM	SMPY0010601	28 dBm,41 % , A,-51 dBc, dB,4X4 ,SMD ,QFN ,24 PIN,R/TP ,DUAL-BAND PAM(CELL/USPCS		
6	U106	COUPLER,RF DIRECTIONAL	SCDY0003401	-22 dB,-0.2 dB,-37 dB,1.0*0.58*0.35 ,SMD ,824M ~ 849M, 4pin, Pb Free		
6	U107	IC	EUSY0300401	QFN ,48 PIN,R/TP ,WCDMA Dual Receiver IC for USA, 7X7X0.9		
6	U201	IC	EUSY0295601	CSP ,409 PIN,R/TP ,WCDMA/GSM/GPRS/EDGE/HSDPA Base Band		
6	U300	IC	EUSY0250501	SC70 ,5 PIN,R/TP ,Comparator, pin compatible to EUSY0077701		
6	U301	IC	EUSY0160001	MicroStar Junior ,15 PIN,R/TP ,1.1W Class-D Mono Audio AMP		
6	U302	IC	EUSY0297301	11*14*1.2 ,225 PIN,R/TP ,NAND(90nm), DRAM(90nm)		
6	U400	IC	EUSY0236901	DFN ,12 PIN,R/TP ,1x/1.5x/2x Charge pump(Sink type)		
6	U401	IC	EUSY0306302	BCCS ,84 PIN,R/TP ,7x7, MSMC(1.2V), pbfree		
6	VA500	VARISTOR	SEVY0001001	14 V , ,SMD ,50pF, 1005		
6	VA501	VARISTOR	SEVY0001001	14 V , ,SMD ,50pF, 1005		
6	VA502	VARISTOR	SEVY0001001	14 V , ,SMD ,50pF, 1005		
6	VA503	VARISTOR	SEVY0001001	14 V , ,SMD ,50pF, 1005		
6	VA504	VARISTOR	SEVY0001001	14 V , ,SMD ,50pF, 1005		
6	VA505	VARISTOR	SEVY0001001	14 V , ,SMD ,50pF, 1005		
6	VA509	VARISTOR	SEVY0001001	14 V , ,SMD ,50pF, 1005		
6	VA510	VARISTOR	SEVY0001001	14 V , ,SMD ,50pF, 1005		
6	VA511	VARISTOR	SEVY0003801	18 V , ,SMD ,		
6	VA512	VARISTOR	SEVY0003801	18 V , ,SMD ,		
6	VA513	VARISTOR	SEVY0003801	18 V , ,SMD ,		
6	VA514	VARISTOR	SEVY0003801	18 V , ,SMD ,		
6	VA515	VARISTOR	SEVY0001001	14 V , ,SMD ,50pF, 1005		
6	VA516	VARISTOR	SEVY0001001	14 V , ,SMD ,50pF, 1005		
6	VA517	VARISTOR	SEVY0001001	14 V , ,SMD ,50pF, 1005		
6	VA518	VARISTOR	SEVY0001001	14 V , ,SMD ,50pF, 1005		

10. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Specification	Color	Remark
6	VA519	VARISTOR	SEVY0001001	14 V , ,SMD ,50pF, 1005		
6	VA520	VARISTOR	SEVY0001001	14 V , ,SMD ,50pF, 1005		
6	VA521	VARISTOR	SEVY0003801	18 V , ,SMD ,		
6	VA522	VARISTOR	SEVY0003801	18 V , ,SMD ,		
6	VA523	VARISTOR	SEVY0003801	18 V , ,SMD ,		
6	VA524	VARISTOR	SEVY0003801	18 V , ,SMD ,		
6	VA600	VARISTOR	SEVY0003801	18 V , ,SMD ,		
6	VA602	VARISTOR	SEVY0003801	18 V , ,SMD ,		
6	VA606	VARISTOR	SEVY0001001	14 V , ,SMD ,50pF, 1005		
6	VA609	VARISTOR	SEVY0001001	14 V , ,SMD ,50pF, 1005		
6	VA611	VARISTOR	SEVY0001001	14 V , ,SMD ,50pF, 1005		
6	VA612	VARISTOR	SEVY0001001	14 V , ,SMD ,50pF, 1005		
6	VA613	VARISTOR	SEVY0001001	14 V , ,SMD ,50pF, 1005		
6	VA614	VARISTOR	SEVY0000702	14 V ,10% ,SMD ,		
6	X100	VCTCXO	EXSK0007801	19.2 MHz,2 PPM,10 pF,SMD ,3.3*2.5*1.0 ,2ppm at -30~+85, AFC 0.4V~2.4V, 2.8V ; ,19.2MHz ,2PPM ,2.8V ,3.3mm ,2.5mm ,1.0mm , ,SMD ,R/TP		
6	X200	RESONATOR	EXRY0002401	48 MHz,.5 % ,14 pF,SMD ,2.0*1.2*0.65 ,Outgoing Tolerance 0.2% ,0.05% at -40'C ~ +85C, Built-In Cap		
6	X400	X-TAL	EXXY0004602	,032768 MHz,20 PPM,12.5 pF,65000 ohm,SMD ,6.9*1.4*1.3 ,		
5	SAFD00	PCB ASSY,MAIN,SMT TOP	SAFD0076001			
6	C325	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C326	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C600	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	D301	DIODE,TVS	EDTY0008606	DFN-2 ,7.82 V,150 mW,R/TP ,PB-FREE		
6	D302	DIODE,TVS	EDTY0008606	DFN-2 ,7.82 V,150 mW,R/TP ,PB-FREE		
6	LD600	DIODE,LED,CHIP	EDLH0006001	Blue ,1608 ,R/TP ,Blue SMD LED		
6	LD601	DIODE,LED,CHIP	EDLH0006001	Blue ,1608 ,R/TP ,Blue SMD LED		
6	LD602	DIODE,LED,CHIP	EDLH0006001	Blue ,1608 ,R/TP ,Blue SMD LED		
6	LD603	DIODE,LED,CHIP	EDLH0006001	Blue ,1608 ,R/TP ,Blue SMD LED		
6	LD604	DIODE,LED,CHIP	EDLH0006001	Blue ,1608 ,R/TP ,Blue SMD LED		
6	LD605	DIODE,LED,CHIP	EDLH0006001	Blue ,1608 ,R/TP ,Blue SMD LED		
6	LD606	DIODE,LED,CHIP	EDLH0006001	Blue ,1608 ,R/TP ,Blue SMD LED		
6	LD607	DIODE,LED,CHIP	EDLH0006001	Blue ,1608 ,R/TP ,Blue SMD LED		
6	LD608	DIODE,LED,CHIP	EDLH0006001	Blue ,1608 ,R/TP ,Blue SMD LED		
6	LD609	DIODE,LED,CHIP	EDLH0006001	Blue ,1608 ,R/TP ,Blue SMD LED		

10. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Specification	Color	Remark
6	LD610	DIODE,LED,CHIP	EDLH0006001	Blue ,1608 ,R/TP ,Blue SMD LED		
6	LD611	DIODE,LED,CHIP	EDLH0006001	Blue ,1608 ,R/TP ,Blue SMD LED		
6	LD612	DIODE,LED,CHIP	EDLH0006001	Blue ,1608 ,R/TP ,Blue SMD LED		
6	LD613	DIODE,LED,CHIP	EDLH0006001	Blue ,1608 ,R/TP ,Blue SMD LED		
6	LD614	DIODE,LED,CHIP	EDLH0006001	Blue ,1608 ,R/TP ,Blue SMD LED		
6	LD615	DIODE,LED,CHIP	EDLH0006001	Blue ,1608 ,R/TP ,Blue SMD LED		
6	MIC300	MICROPHONE	SUMY0010512	PIN ,42 dB,4*1.1T ,SMD MIC		
6	PCB	PCB,MAIN	SPFY0132301	FR-4 ,0.8 mm,STAGGERED-8 ,CU400		
6	R309	RES,CHIP,MAKER	ERHZ0000443	2200 ohm,1/16W ,J ,1005 ,R/TP		
6	R310	RES,CHIP,MAKER	ERHZ0000443	2200 ohm,1/16W ,J ,1005 ,R/TP		
6	R505	RES,CHIP,MAKER	ERHZ0000404	1 Kohm,1/16W ,J ,1005 ,R/TP		
6	R600	RES,CHIP,MAKER	ERHZ0000500	62 ohm,1/16W ,J ,1005 ,R/TP		
6	R601	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R603	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
6	R604	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
6	R605	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
6	R606	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
6	R607	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
6	R608	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
6	R609	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
6	R610	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
6	R611	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
6	R612	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
6	R613	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
6	R614	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
6	R615	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
6	R616	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
6	R617	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
6	R618	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
6	U600	IC	EUSY0129503	2x2 mm MLPD ,3 PIN,R/TP ,Hall Effect Switch, Pb Free		
6	VA506	VARISTOR	SEVY0001001	14 V ,SMD ,50pF, 1005		
6	VA507	VARISTOR	SEVY0001001	14 V ,SMD ,50pF, 1005		
6	VA508	VARISTOR	SEVY0001001	14 V ,SMD ,50pF, 1005		
6	VA601	VARISTOR	SEVY0003801	18 V ,SMD ,		

10. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Specification	Color	Remark
6	VA603	VARISTOR	SEVY0003801	18 V , SMD ,		
6	VA604	VARISTOR	SEVY0001001	14 V , SMD ,50pF, 1005		
6	VA605	VARISTOR	SEVY0001001	14 V , SMD ,50pF, 1005		
6	VA607	VARISTOR	SEVY0001001	14 V , SMD ,50pF, 1005		
6	VA608	VARISTOR	SEVY0001001	14 V , SMD ,50pF, 1005		
6	VA610	VARISTOR	SEVY0001001	14 V , SMD ,50pF, 1005		

10. EXPLODED VIEW & REPLACEMENT PART LIST

10.3 Accessory

Note: This Chapter is used for reference, Part order is ordered by SBOM standard on GCSC

Level	Location No.	Description	Part Number	Specification	Color	Remark
3	MCJA00	COVER,BATTERY	MCJA0035401	MOLD, PC LUPOY SC-1004A, , , , ,	Black	60
3	SBPL00	BATTERY PACK,LI-ION	SBPL0085401	3.7 V,1100 mAh,1 CELL,PRISMATIC ,CU400 BATT, North America Label, Pb-Free ,; ,3.7 ,1100 ,0.2C ,PRISMATIC ,50x34x55 , ,ALLTEL SILVER ,Innerpack ,		59
3	SSDA00	ADAPTOR,AC-DC	SSAD0016903	100-240V ,5060 Hz,4.6 V,0.8 A,UL & CSA ,		
Alternate		ADAPTOR,AC-DC	SSAD0016902	100-240V ,5060 Hz,4.6 V,0.8 A,UL & CSA ,		

Note
